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OLM Local Rollout – Phase I

Marine Corps Recruit Depot at Parris Island

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13. ABSTRACT (<i>Maximum 200 Words</i>) This paper presents a summary of the results of the Apparel Research Network's (ARN) installation of the Quality Logistics Management (QLM)/Local wholesale local inventory management system at the U.S. Marines Corps Recruit Training Center -- Parris Island, South Carolina. The system implementation enabled the Defense Supply Center Philadelphia (DSCP) and the Defense Logistics Agency (DLA) to convert the recruit clothing inventory at this Recruit Training Center from retail to wholesale-managed assets.			
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PREFACE

This Final Technical Report covers work accomplished for the Apparel Research Network (ARN) of the Defense Logistics Agency (DLA) in conformance with Delivery Order 0013 during the period 10 September 2001 to 12 May 2002. This Report covers the Short Term Project (STP) for implementation of QLM/Local at MCRD Parris Island – Phase 1. The objective of this project was capitalization of recruit clothing assets as wholesale local inventory to be managed by the DSCP Item Managers, to develop an automated solution for collecting and reporting individual issues, and subsequent transmitting of cost data to the Marine Corps Financial Office. The completion of the support provided in Phase I at MCRD-PI accomplished the immediate goal of moving ownership of the inventory to DSCP.

Implementation of QLM/Local is part of the ARN Supply Chain Management system for reducing military clothing inventories through automated systems for asset visibility at the across the supply chain. Prior to this implementation the ARN Partners had developed a centralized DataMart (ARN Asset Visibility System); developed a balanced flow replenishment system (BIFRS); implemented a retail inventory management system (QLM/Retail) at the Marine Corps Recruit Depot in San Diego (MCRD-SD); and implemented QLM/Local at five U. S. Army Clothing Initial Issue Points (CIIPs). VIM/QLM-Central obtains essential data from the AAVS DataMart that is used by DSCP Item Managers (IMs) to manage DSCP-owned wholesale local inventory at those locations. Issue data is transmitted via service legacy systems located behind installation firewalls. These developments are documented in ARN Final Technical Reports (see Appendix D – ARN Supply Chain Management Final Technical Reports).

There are several on-going ARN Supply Chain Management system projects including:

- Development of ASAP (ARN Supply-chain Automated Processing) for tracking manufacturing assets and electronic invoicing;
- Development of ASTRA (ARN Supply-chain Transaction Repository Audit) for validation of MILSTRAP and other transactions before they are transferred to SAMMS and DataMart.
- Development of VIM/QLM-Central;
- Implementation of the complete ARN Supply Chain Management System at the Marine Corps Recruit Depots; and,
- Implementation of BIFRS-Wholesale.

Additional ARN Program information is available from the ARN web site at <http://arn.iitri.org>.



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- Appendix C – Additional Project References
- Appendix D – Recruit Clothing Supply Chain Assessment, MCRD-PI

1.0 EXECUTIVE SUMMARY

1.1 Overview

This paper presents a summary of the results of the installation and support of the QLM/Local wholesale local inventory management system at Marine Corps Recruit Depot-Parris Island (MCRD-PI) and provides information on the results of the implementation. The following sections of this document describe the entire implementation process from the initial survey and recommendations to this final technical report.

The success of the implementation is evident throughout the report. The system recommendations were developed based on the guidance from the Department of Defense Logistics Agency that the efforts and system should focus on assisting MCRD-Parris Island's effort to provide visibility of local inventory, to reduce inventory investment, and to facilitate replenishment by implementing technologies and practices developed by the Apparel Research Network (ARN). ARN Program Management provided detailed guidance throughout the project.

1.2 Project Approach

The AdvanTech, Inc. project team initiated an in depth assessment of the recruit clothing supply chain as it existed at MCRD-PI, and researched the differences from Marine Corps Recruit Depot-San Diego (MCRD-SD), other recruit training centers, the legacy system(s), the data flow, and impacts and benefits from enhancing existing operational procedures. The team conducted a detailed process flow of the current operations. The assessment research determined the minimum work necessary for transition of MCRD-PI retail stock to wholesale local inventory and management thereof by the DSCP Item Managers.

A report was provided to the ARN Program Manager detailing recommendations and a plan and alternatives for transition to improved operations. The current operational replenishment and data flows at MCRD-PI were documented to ensure that the processes were fully understood before Phase I support providing implementation of the new supply chain process (see Appendix B – MCRD-PI Replenishment & Data Flowcharts, and also Appendix D – Recruit Clothing Supply Chain Assessment, MCRD-PI.). A second phase of support was planned to provide continued support leading to full automation of inventory management incorporating 3D-scanning and automated support for replenishment.

1.3 System Architecture

The ARN Asset Visibility System (AAVS) and AAVS DataMart have been created to collect data into a single source to provide Item Managers at the retail (Recruit Training Centers) and wholesale (DSCP) level with clear visibility of all recruit clothing assets. This is accomplished using National Stock Numbers (NSNs) within Product Grouping Codes (PGCs) to track items in all segments of the supply chain. Operational data is extracted from the SAMMS Clothing & Textile (C&T) server and used as the basis for the operational and decision support capabilities in the Virtual Item Manager (VIM) system incorporating QLM/Central for wholesale inventory management capabilities.

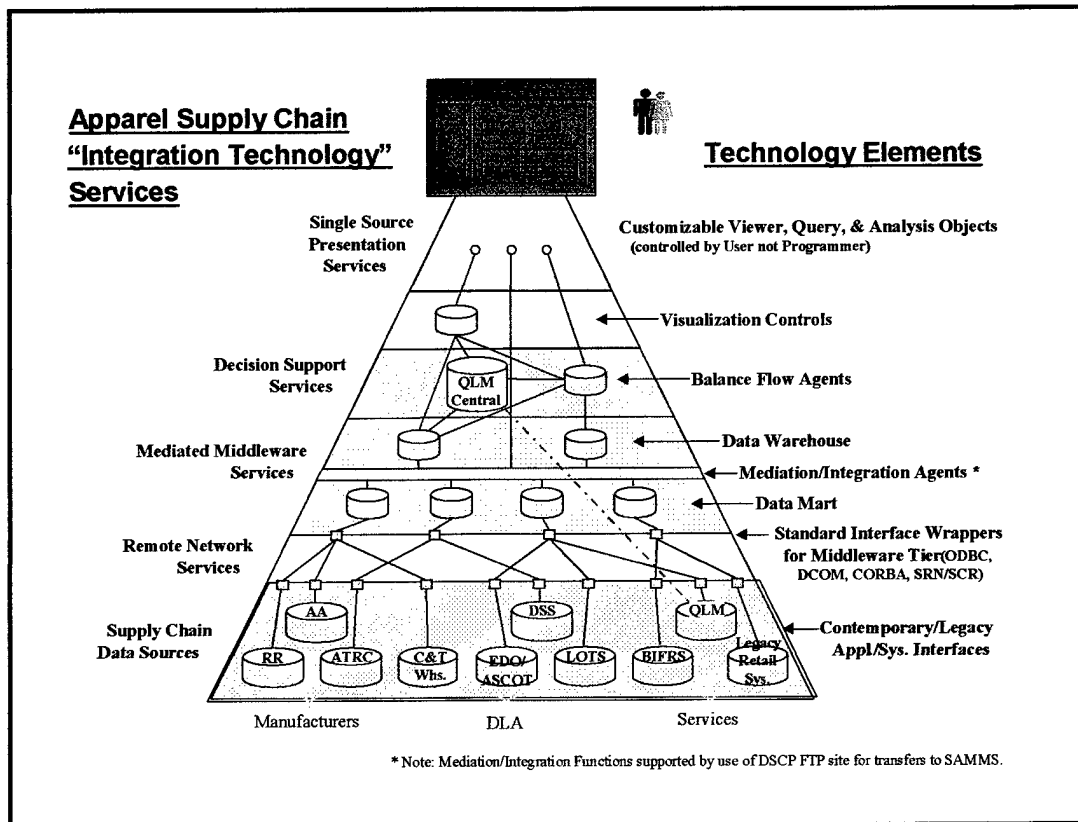


Figure 1 – Systems Architecture.

As shown in Figure 1, the concepts employed in the relationships between local legacy retail systems, QLM/Local and VIM/QLM-Central provide for inventory management and stock replenishment by linking support and systems from the lowest to the highest levels. At the bottom of the pyramid, the transaction processing capabilities of both local legacy retail systems and QLM/Local provide for recording of the issue and receipt transactions. This information is "rolled-up" into the AAVS DataMart and displayed to Item Managers via the VIM/QLM-Central capabilities. This allows the managers at the

different levels to have visibility of the inventories at both wholesale depot and wholesale local and to manage replenishment as supplies are used to support RTC operations.

1.4 Implementation

The implementation at MCRD-PI took place 10 September 2001 to 18 December 2001 with post-implementation support through 12 May 2002. The implementation process occurred in several phases. The key steps were site preparation activities, implementation planning and training, go-live, QLM/Local operations and post-implementation support.

Following the initial site survey, the recommendations for the site were prepared and approved, and the hardware/software prepared (hot-staged), shipped and installed. Testing of the system software then followed these initial steps. Concurrent with the installation and testing activities, key personnel were provided with initial training related to how the QLM/Local system was designed to provide support along with utilizing the scan forms to capture and report daily issues. Other implementation steps are described below:

1.4.1 Finalized Method For Capturing Each Type Of Non-Recruit Issue

A script was written and installed to incorporate the MCRD-PI generated non-recruit issues into the scan form j0A file (milstrip file for processed issues) prior to being transmitted to VIM/QLM-Central. This script inserts the non-recruit issue j0As created by MCRD-PI's locally developed routine into the j0A issue file that is transmitted each day to report recruit issues captured with the scan forms. All forms were modified in collaboration with MCRD-PI personnel to ensure complete data capture and to minimize any delays in recruit processing.

1.4.2 Parameter Review

In preparation for go-live QLM/Local databases were reviewed and tested. Previously calculated reorder parameters, established in concurrence with MCRD-PI, were reviewed. The initial reorder points were set at 45 DOS and the reorder quantities were set at 15 DOS. This level will be maintained for six months in order to collect consumption and demand history. After that time, the reorder parameters will be reviewed and changed as necessary. Instructions were provided on how to request a change to a specific stock number's reorder parameters, should that action be required.

1.4.3 Locator & Warehouse Setup

AdvanTech team members worked with MCRD-PI personnel to begin assigning stock locations to be entered into QLM/Local. Under the legacy system, stock locations were only assigned to bulk storage locations. Under QLM/Local, it was necessary to assign stock locations in both the bulk storage areas and the issue points. QLM/Local only



maintains one on hand inventory value for each stock number; however, a unique stock numbering system is required for each stock location so that the inventory module can produce appropriate inventory count sheets. MCRD-PI maintains two bulk storage areas and three issue points. The Phase 1 Unisex Issue Point and the TD 15/16 Issue Point are co-located.

Issue Point	Type of Issue	Type of Storage
Bulk	Replenish Issues Points	Pallet Racks and Floor Storage
Bulk	Replenish Male Phase 2 IP	Carousel
Phase 1 Unisex	Unisex Training Uniform	Carousels, Shelving, and Issue Counter
TD 15/16	Dress shoes and Cammies	Carousels, Shelving, and Issue Counter
Phase 2 Female	Female Dress Uniform	Shelving and Bins
Phase 2 Male	Male Dress Uniform	Gravity Flow Racks and Issue Counters

Table 1 – MCRD-PI Issue Point Storage Information

MCRD-PI had assigned the first three digits of a stock location numbering system. This data was uploaded into QLM/Local. The finalized stock locations, less those in the Phase 2 Male bulk inventory were updated on 3 May 2002. MCRD-PI was aware of the requirement to complete the stock location assignment prior to the DSCP directed semi-annual inventory scheduled for 17-19 May 2002.

1.4.4 Conduct Initial User Training and Implementation Support

Local user access was established for designated individuals to receive QLM/Local training. Initial training in QLM/Local functions and the VIM Wholesale-Local screens was conducted. A group training session was provided covering the QLM/Local, ASTRA, VIM/QLM-Central, and SAMMS data flow and processing timeframes. Training also included ESOC procedures, defective material procedures and discrepant shipment procedures. An overview of how to use the Physical Inventory Module was provided with specific instructions in preparation for DSCP inventories to be conducted periodically.

Specific guidance was provided for entering data into and completing the Recruit Shipping Plan, the Standard Issue Table, and Stock Locations. Special attention was given to the Table Repair function, Recruit Exchanges, the Month End Processing and the Inventory Reconciliation functions. A number of ad-hoc report queries were placed on the QLM/Local desktop. These included queries to quickly view daily receipts, issues, inventory adjustments, and credit returns. Although not part of the QLM/Local reports menu, they provide a quick snapshot of daily activities.

1.4.5 Conduct Physical Inventory

The turnover physical inventory counts were conducted on 14-16 December 2001 with final analysis of the results completed on 17 December 2001 prior to DSCP assumption of inventory ownership. No significant problems were encountered during the inventory. In the Cash Sales Store, only the Condition Code A stocks were counted. Recovered clothing and other non-Condition Code A stocks were not part of the capitalization-decapitalization process and remained the property of the Marine Corps.

With the transfer of inventory ownership to DSCP, MCRD-PI planned to deactivate the Marine Corps standard legacy system, MUMMS, previously used as an inventory control system for recruit clothing stocks. Unlike MCRD-SD, a requirement remains at MCRD-PI to use MUMMS to manage other classes of supply.

1.4.6 Capitalization/Decapitalization

The official go-live process was accomplished on 18 December 2001. The capitalization-decapitalization dollar value of the inventory was:

Bulk and Issue Line Inventory:	\$4,215,068.13
Cash Sales (Condition Code A):	<u>127,722.25</u>
Total Condition Code A:	\$4,087,345.88

Upon capitalization/decapitalization, the Condition Code A stocks that were present in the Cash Sales Store were issued (sold) back to the Marine Corps, with AdvanTech generated j0A transactions based on the NSNs and quantities reported by MCRD-PI. This process was necessary for MCRD-PI to "zero out" the inventory balances in the legacy MUMMS system. As noted, MCRD-PI continues to own and manage all Condition Code A and B stocks carried in the Cash Sales Store, and all other Condition Code B stocks. There were a total of 1326 NSNs loaded to QLM/Local. Of these, 579 were assigned reorder points of zero to indicate an "as required" item.

1.4.7 Activate MCRD in VIM and VIM/QLM-Central

The actions necessary to activate MCRD-PI's wholesale-local inventory under DODAAC/RIC SC1143/STV were accomplished at the AdvanTech corporate offices. The j0A transactions to sell back the Cash Sales Condition Code A inventory were submitted on 21 December 2001. On 19 December, the first Suggested Order List was processed through VIM/QLM-Central. The dollar value was \$511,380.90. These were immediately viewable on the VIM website.

1.4.8 Conduct Post-Implementation User Training and Site Support

Personnel responsible for processing issues using the issue scan forms were given hands-on training with the Autodata Scannable Office software used to scan forms. The user guides for the issue scan forms processing were reviewed with MCRD-PI personnel with questions answered by example when possible. The Edit process was reviewed and users



were shown how to identify a problem on the form being displayed and what to do to correct the problem. Hands-on training was conducted on how to print blank scan forms, when and how to process the j0A transactions for the issues captured on the scan forms, and how to correct a problem with the scanner.

1.4.9 Provide System/User Manuals.

MCRD-PI personnel were provided user guides for the following purposes:

- Completing the scan forms;
- Form scanning procedures;
- Form Editing procedures;
- Completing nightly form processing;
- Troubleshooting scanner problem;
- Forms used at MCRD-PI;
- NSN listing of stocked items at MCRD-PI; and,
- The QLM/Local User's Manual.

1.5 Summary

The objectives and goals of the implementation process were accomplished. MCRD-PI personnel were enthusiastic and supportive as the project commenced and Phase I activities completed. An excellent, solid communications path was developed between MCRD-PI Implementation Group members and the AdvanTech Implementation Team.

The VIM/QLM-Central and QLM/Local systems implemented provide the MCRD-PI Retail and DSCP Item Managers with the essential abilities to effect both the wholesale-local and the wholesale inventory draw down objectives at MCRD-PI, and to monitor and report on progress achieved on a continuing basis.

2.0 INTRODUCTION

The Quality Logistics Management (QLM™) Client/Server System (QLM-C/S) has been fully installed and is operational at MCRD-PI as QLM/Local. The system using QLM/Local supports the functional requirements of the local wholesale supply chain management for recruit clothing. The newly installed scan form system provides information on recruit issues to VIM/QLM-Central. This system is linked for inventory requisitioning purposes to the Defense Supply Center Philadelphia's (DSCP) Automated System for Cataloging and Ordering of Textiles (ASCOT) and the Standard Automated Material Management System (SAMMS) through FTP sites and dial-in programs.

2.1 Overview of System Architecture

The ARN Asset Visibility System (AAVS) and AAVS DataMart have been created to collect data into a single source to provide Item Managers at the retail (Recruit Training Centers) and wholesale (DSCP) level with clear visibility of all recruit clothing assets (National Stock Numbers [NSNs] within Product Grouping Codes [PGCs]) in all segments of the supply chain. Operational data is extracted from the SAMMS Clothing & Textile (C&T) server and used as the basis for the operational and decision support capabilities in the Virtual Item Manager (VIM) system incorporating VIM/QLM-Central for wholesale inventory management capabilities.

VIM/QLM-Central has been developed as an independent network server linking C&T SAMMS, AAVS DataMart and QLM/Locals into a single unit/integrated systems approach for recommending relocation of uniform items from "depots" to MCRD-PI and other RTCs. To accomplish this, the base QLM-Client/Server was modified to use data from the AAVS DataMart for decision support and management of inventory in the supply chain. A web-based interface with the Virtual Item Manager (VIM) was incorporated in VIM/QLM-Central.

VIM was developed to provide a common user interface for Item Managers to use to manage the supply chain using inventory data flowing from the retail and wholesale levels to the AAVS DataMart and VIM/QLM-Central. The Virtual Item Manager (VIM) as it is being developed uses a combination of computer and web-based software that provides Item Managers with the supply chain and inventory information necessary to expedite distribution of assets. The relationships of the systems comprising the supporting information systems architecture are shown in the figure in the preceding section (see Figure 1 – Systems Architecture).

The implementation of QLM/Local as it has been implemented at MCRD-PI and other RTCs involved processing the local MILSTRIP transactions through VIM/QLM-Central. After processing, the issue information in MILSTRIP format is transferred to ASCOT and then processed through SAMMS.

This process involves converting the local issue data into a format for further conversion to the format for processing through the U. S. Marine Corps financial systems.

2.2 Scope of the Project

The scope of this project required Project Team members to coordinate several different tasks and activities. The initial activity included the conduct of analysis and definition of the server and MILSTRIP interfaces between local systems and QLM/Local. Tailoring of system software, testing, and implementation of the QLM/Central and QLM/Local systems to generate local MILSTRIP transactions at MCRD-PI followed this.

The systems required programming to transfer MILSTRIP data from the local scan form system to VIM/QLM-Central and back to QLM/Local for DSCP and Local Item Managers to collaborate on the management of DSCP-owned stocks through the VIM/QLM-Central common user interface. To accomplish this, MILSTRIP data from local scan forms and QLM/Local is transmitted, via the ARN AAVS DataMart to the project contractor AdvanTech, Inc., for asset visibility, decision support, and inventory management.

The QLM/Local Server hardware and systems software (i.e., the Windows NT Operating System) were provided by DSCP. The contracts to establish communication linkages for QLM/Local were handled by AdvanTech, and the Project Team subsequently oversaw the installation and training in the use of the Internet Service Provider (ISP) software and communication capabilities to transfer information to QLM/Central via file transfer protocols (ftp). After initial development and testing, QLM Local was moved to operational status at MCRD-PI.

The Project Team followed development of the initial system design requirements with implementation and "go-live" support. This activity provided essential support for the construction of all data tables and data conversion necessary to obtain issue information from the recruit issue scan forms.

Subsequent to implementation and go-live, the Project Team provided support for system operation and management support. During this time, AdvanTech provided system operational and management support to the DSCP and Wholesale Local Item Managers, providing recommendations for QLM/Local operations and routine inventory support. These activities required close collaboration with personnel at DSCP as well as on-going and frequent communication with personnel at MCRD-PI.

Throughout the project, AdvanTech provided routine reports and project status updates. Status reports were routinely provided on a monthly basis by email and hard copy. Monthly Interim Progress Reports (IPRs) were prepared and provided. This document is the Final Technical Report.



2.3 Short Term Project Objectives

The objectives of the Short Term Project (STP) and project proposal leading to this FTR included:

- Implement QLM/Local to transfer MILSTRIP transactions from MCRD-PI. Upon implementation of QLM/Local, the system immediately started making decision support recommendations based on scan form recruit issue input.
 - Essential order and inventory management information was to be transmitted from the scan forms and QLM/Local to VIM/QLM-Central via ASCOT, SAMMS and the AAVS DataMart, with VIM providing the common data and user interface.
- The overall objective was to provide the DSCP Item Managers, through the VIM/QLM-Central system functions, the information they needed to manage and control DSCP-owned inventory at MCRD-PI.
 - Provide DSCP with more timely, accurate recruit specific issue data.
 - Implement the QLM/Local system to capture and transmit receipts, recruit returns, and adjustments to the AAVS DataMart and ASTRA (Automated SAMMS Transaction Repository for Apparel).
 - Capture and transmit daily consumption data and inventory transaction information from the legacy system to the AAVS DataMart, ASTRA, VIM/QLM-Central and C&T SAMMS. This includes capturing the recruit issue data.
 - Establish the communication linkages between MCRD-PI and the DSCP ftp site(s).

2.4 Definition of Terms

“Wholesale Local” Inventory. The inventory of an RTC combined with the RTC bulk or DCSP bulk inventory that is co-located, or in close proximity, and *owned by DSCP*.

DOS: Required quantity for a day (higher level of granularity, e.g., at the PGC level) – Required quantity of the right item of the right size for a day, e.g., PGC+Tariff at the NSN Level and DOS is expressed in units (quantity).

Two definitions for Days of Supply:



- Retail DOS or RDOS
- Annual Wholesale DOS or ADOS

Computation of RDOS is based on data provided to the AAVS Data Mart for the RTC:

- Number of Recruits on a weekly basis (based on Accession Plan)
- Tariff for the RTC
- Using these two items, BIFRS-W algorithms are used to compute the annualized DOS. By performing the computation in a “central” location as opposed to the individual RTCs, any changes to the computation algorithm can be easily implemented.

Computation of ADOS is based on two components:

- Predicted data for RTCs
- Historical data based on past sales for other (non-RTC) sales in the respective military service including all military sales for items used by the RTCs, so that usage on “common items” is captured.
- Both data items will come from AAVS and be used by BIFRS-W algorithms for computing WDOS with BIFRS-W algorithms used in calculating the ADOS for individual RTCs.

3.0 SYSTEM ARCHITECTURE & OPERATIONS

3.1 Overview of System Architecture

The overall focus of the ARN Asset Visibility System (AAVS) and AAVS DataMart is on the collection of data in a shared repository for use by the Item Managers at the retail (RTCs), wholesale (DSCP), and manufacturer (VIM/ASAP) levels. The systems incorporated in this integrated approach are designed to provide all users with clear visibility of all recruit-clothing assets throughout all segments of the supply chain. Further, the systems extract operational data from the Clothing & Textile (C&T) server and use this information as the basis for supporting decisions by the Item Managers for supporting operational needs. Thus, the Virtual Item Manager (VIM) system incorporates the decision support capabilities of VIM/QLM-Central for wholesale inventory management requirements.

In the efforts that have been accomplished to-date, VIM/QLM-Central provides an independent network of servers linking C&T SAMMS, AAVS DataMart and QLM/Locals into an integrated system for recommending relocation of uniform items from "depots" to the supported RTCs. To create this integrated systems approach, the base QLM/Client-Server was modified to use data from the AAVS DataMart for decision support and management of inventory in the supply chain.

A web-based interface with the Virtual Item Manager was incorporated in VIM/QLM-Central. VIM was developed to provide a common user interface for Item Managers to use to manage the supply chain using inventory data flowing from the retail and wholesale levels to the AAVS DataMart and VIM/QLM-Central. The Virtual Item Manager (VIM) as it is being developed uses a combination of computer and web-based software that provides Item Managers with the supply chain and inventory information necessary to expedite distribution of assets.

The implementation of QLM/Local as it was implemented at MCRD-PI involved processing local MILSTRIP transactions through VIM/QLM-Central. After processing, the issue information in MILSTRIP format is transferred to ASCOT and then processed through SAMMS.

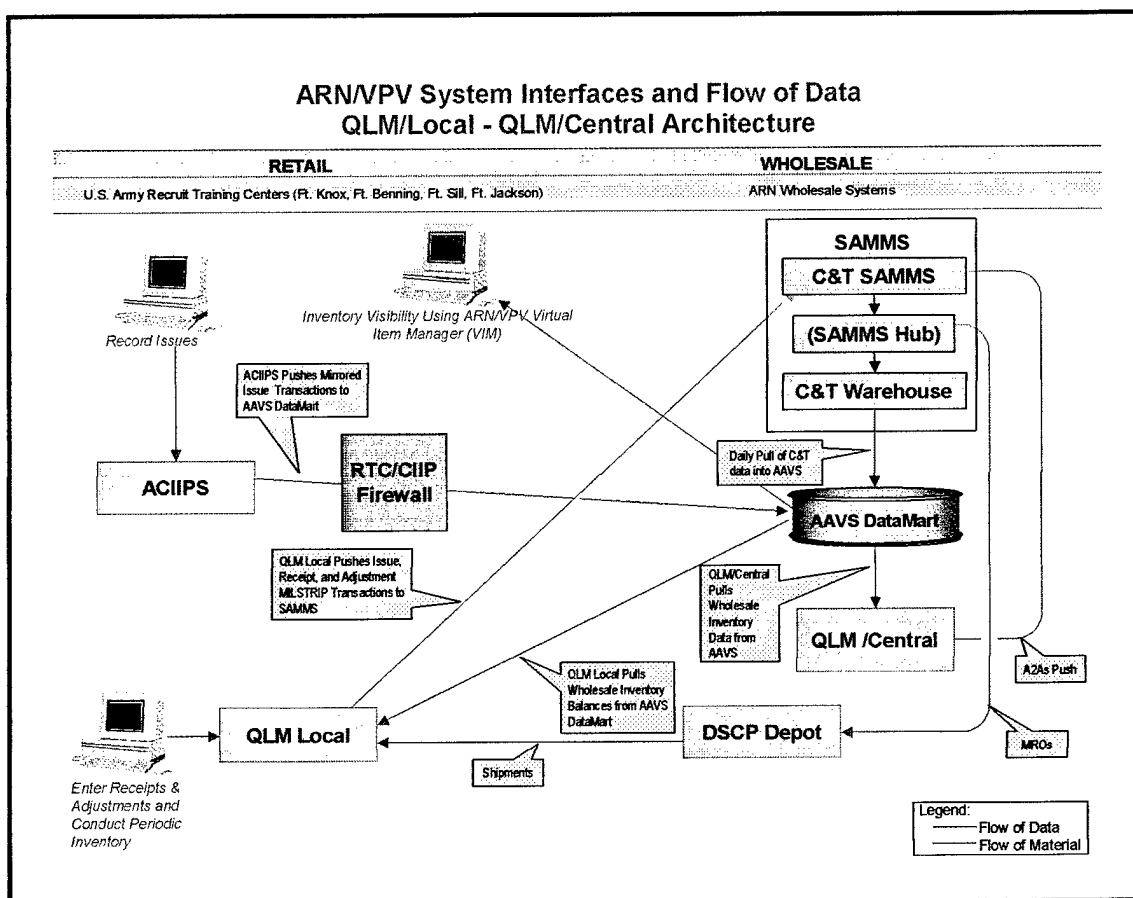
This process involves converting the local issue data into a format for conversion to a format for processing through the U. S. Marine Corps financial system. This STP constituted the rollout of QLM/Local to the remaining U.S. Marine Corps Recruit Depot.

3.2 General Concept of Operations

In preparation for transfer of ownership of recruit clothing assets at MCRD-PI to DSCP, AdvanTech implemented the Quality Logistics Management (QLM) system for support

at the wholesale local level. The purpose of the QLM/Local system is to provide restock recommendations based on MCRD-PI projections of the numbers of recruits to be trained/processed, and the actual clothing issues information provided by the scan form system. System relationships and data flows are illustrated in Figure 2.

With the transfer of inventory assets to DSCP ownership, the MCRD-PI stock location was designated as a new DSCP RIC (Routing Identifier Code) or Depot. The transactions are sent via file transfer protocol (ftp) to VIM/QLM-Central at AdvanTech. VIM/QLM-Central then processes the issue information, adjusting the quantities of individual NSNs available for issue, generating replenishment requirements, and manages the local inventories. Issues, Receipts, Adjustments, and Redistribution Requests are transmitted into SAMMS via the Clothing & Textiles (C&T) Ascot Server daily from VIM/QLM-Central.



This approach, as illustrated above in Figure 2, shows that there is no interference with the MCRD-PI operation, and minimal impact on current system operation and resources. The objective was to make the transfer of asset ownership with inventory replenishment

responsibilities to DSCP and implementation of QLM/Local and VIM/QLM-Central as transparent as possible to MCRD-PI. As designed, VIM/QLM-Central pulls wholesale inventory stock levels from AAVS DataMart to determine ship-points (depots or bill & hold locations) for the redistribution requests.

QLM/Local operates outside the MCRD-PI firewall, and does not require connectivity or access to the MCRD Local Area Network (LAN). MCRD-PI procedures have remained the same, with the addition of periodic inventory using handheld terminals and the entry of receipts and adjustments directly into QLM/Local. A DSCP-sponsored telephone line is being used for VIM/QLM-Central to gather all inventory data and transactions from QLM/Local. As a result of implementing this operational scenario, there was no need for access to the MCRD-PI base LAN.

MCRD-PI personnel have full visibility of DSCP's wholesale-local inventory. This is provided through the Virtual Item Manager (VIM) Internet browsing capability into the Apparel Asset Visibility System (AAVS) DataMart, an Apparel Research Network (ARN) initiative now in prototype. Finally, AdvanTech uses a dial-up telephone line to QLM/Local for the purpose of system software maintenance.

4.0 MCRD-PI CURRENT OPERATIONS

MCRD-PI retail clothing procedures are in accordance with Marine Corps directives governing the operations of a Navy "Working Capital Stock Fund" inventory under the Marine Corps Uniform Material Management System (MUMMS) operated by the Direct Support Stock Control Branch of the Supply and Service Division

4.1 Organizations and Manpower

The Clothing Branch is part of the MCRD-PI Supply and Service Division. It consists of an Administration and Operations section, a Phase 1 Issue Point, a Phase 2 Female Issue Point, a Phase 2 Male Issue Point, a Cash Sales Store, and a Storage and Redistribution section.

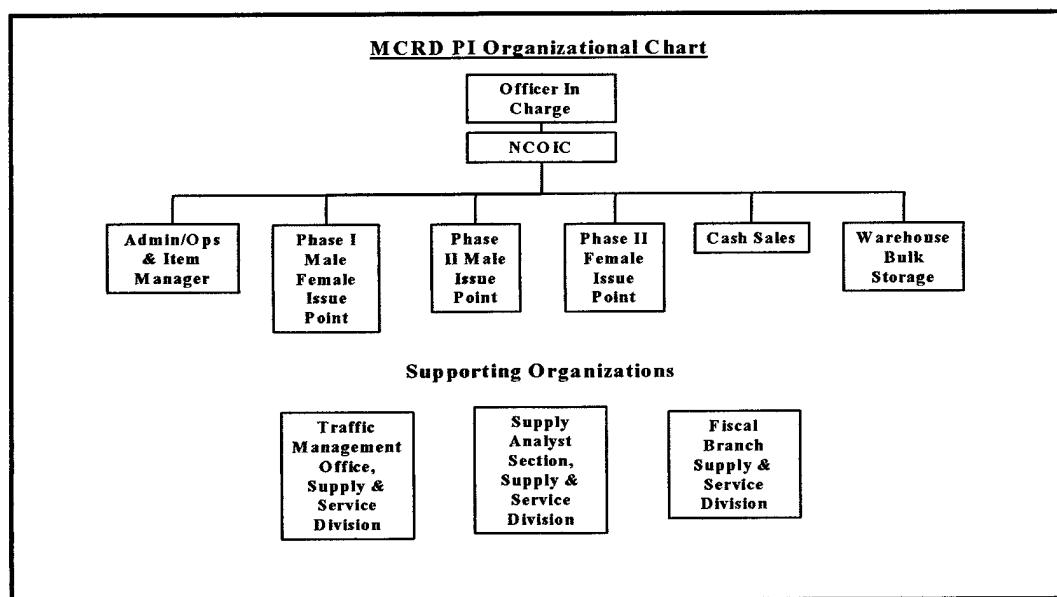


Figure 3 – MCRD-PI Clothing Branch Organizational Chart

4.1.1 Branch Head and Administration and Operations Section

This section provides for the Branch Head and Clothing Chief, as well as the daily operational control of the Clothing Branch, inventory management and replenishment, inventory control, and training of assigned Marines. The section is staffed with 4 Marines and 5 civilian employees.

4.1.2 Phase 1 Issue Point

This section issues the basic training uniform to male and female recruits on night of arrival. It also issues additional uniforms at Training Day 16 to male and female recruits. The section is staffed with 16 Marines divided into a day crew and a night crew.

4.1.3 Phase 2 Female Issue Point

This section fits and issues the dress uniform to female recruits during the fourth week of recruit training. The section is staffed with 10 Marines and one civilian employee.

4.1.4 Phase 2 Male Issue Point

This section fits and issues the dress uniform to male recruits during the fourth week of recruit training. The section is staffed with 13 Marines and 4 civilian employees, one of which is an intermittent employee who is used as needed.

4.1.5 Cash Sales Store

This section sells new and reclaimed uniform items to active duty Marines, recruits, and other authorized patrons. The section is staffed with 4 Marines.

4.1.6 Storage and Redistribution Section

This section receives and processes inbound shipments, places shipments into storage in the bulk inventory warehouse, and replenishes the issue points as necessary. This section is staffed with 2 Marines and 8 civilian employees. The Marines are actually part of the Bulk Fuel section of Supply and Service Division but are used mainly to assist in warehouse operations. One of the civilian employees is assigned to collect, account for, and store the personal effects of the recruits.

4.2 Supporting Organizations

4.2.1 Fiscal Branch, Supply and Service Division

This branch provides financial accounting support for all Navy Working Capital Stock Fund transactions and interfaces with the Defense Financial Accounting Office. This section is staffed with one civilian employee and three Marines.

4.2.2 Supply Analyst Section

This section provides support maintaining for the information systems used by the Clothing Branch. At the time of the installation, these systems included the Marine Corps Uniform Material Management System (MUMMS), BIFRS-Retail, BIFRS-Lite, and the various software suites and routines that were used to operate the storage

carousels and track the internal movement of assets. This section is staffed with three civilians.

4.2.3 Traffic Management Office (TMO)

TMO is the first point of destination for all freight arriving at MCRD-PI. Freight is unloaded and temporarily stored in the TMO warehouse. Local units pick up their shipments from the TMO.

4.3 Recruit Issues

MCRD-PI maintains four points of distribution to support recruit training: Bulk Storage, Phase 1 Issue Point, Female Dress Uniform Issue Point, and Male Dress Uniform Issue Point. Each of these locations and their operational activities are described in the following sections.

4.3.1 Phase I Issue

The issue point for male and female Phase I is a portion of a building, specifically designed for the purpose of processing and outfitting newly arrived recruits, built within the last ten years. New recruits receive six green t-shirts, one pair of green physical training (PT) trunks, one pair of sweatpants, one sweatshirt, three white t-shirts, six pair of boot socks, six pairs of liner/dress socks, two pairs of boots (infantry combat and hot weather), two camouflage covers, and three sets of camouflage utility uniforms (tops and bottoms). Male recruits also receive six pairs of jockey shorts. The initial issue is carried out in the early morning hours and is completed at a rate of approximately one platoon per one and one-half hours. The Phase I recruits receive a sea bag which has been partially filled by a recruit working party during the previous afternoon. The working party pulls items such as underwear, sweats, socks, etc. and pre-fills the sea bag. The items are sized as larges only, given that the majority of the recruits require large size on such items. If it is discovered that an alternate size is required, exchanges are made during the shakedown process. By the time the shakedown is complete, the recruit's sizing and corresponding paperwork is in sync. Boot sizing is done by trial and error, with the initial size issued being the recruit's stated shoe size. Returns and reissues were numerous, however the entire boot issue process for the observed eighty recruits only took approximately fifteen minutes. Three platoons were scheduled to be processed over a four hour period, and the issue facility staff pressured the recruits to quickly don their gear, make necessary changes to the issue as needed, and record any issue modifications on the form provided.

4.3.2 Female Phase I Issue

Female Phase I processed in similar fashion in the same facility; however, the female issue is conducted separately from the male issue. The size and processing time of the female platoon was not observed.

4.3.3 Training Day (TD) 15/16 Male/Female Issue

A separate issue of two camouflage utilities sets and dress shoes is provided on TD 15/16. The logic being that the recruits have received a significant portion of their most utility-destructive training by this point in time, and this provides two fresh sets for longer-term use in newer condition.

4.3.4 Phase II Male Issue

This issue is conducted in the first floor of the Clothing building that was constructed specifically for this purpose. The facility provides substantial bulk storage and breakout space for the efficient processing of recruits. The building also provides office space for the clothing management staff, and a substantial tailoring and seamstress processing area – provided through an outside contractor. There is also a small cash sales store located on the ground floor of the facility.

Phase II issues are completed at approximately day twenty-two of training. The recruits are initially sized by a group of three fitters who use a measuring system to predict the appropriate size of each component of the issue. The recruits then take a plastic tote box to the issue area and walk in serpentine fashion to each issue location.

When the issue is complete, the recruit goes to the shakedown area, dons the issue, and goes back to see the fitter. If the fitter passes the issue, the recruit sees a tailor for final fit. If not, the recruit goes back to the issue area and receives a replacement item of the correct size. Once all exchanges are completed, the recruit sees the tailor. After the final fit alterations are recorded, the recruit removes the issue, places the issue in a laundry bin for delivery to the tailoring contractor, and leaves the facility.

4.3.5 Female Phase II

Female Phase II issues are handled at approximately the same time in the training schedule. Females are directed to open containers of issue items and asked to try samples on to find a size that fits most closely.

Once each item is selected, the recruit is reviewed by a fitter/tailor for final fit or exchanges. It has been proven that this method most efficiently fits the female recruit due to the wide variance in female measurements. When final fit is complete, the recruit removes the issue, places the issue in a laundry bin for delivery to the tailoring contractor, and leaves the facility.

4.3.6 Recruit Issue Time Constraints

Recruit issues are scheduled on the Recruit Training Schedule and time schedules must be adhered to in order to allow time for other training requirements. Exceeding scheduled time frames impacts other events on the Training Schedule. The Phase I Issue is scheduled for 1-½ hours on the night of arrival. This issue is done as much as possible by platoon with man counts up to 90+ during the summer surge. Female platoons are much smaller.

The T-15/16 Issues, which includes the entire male or female recruit company, is scheduled to occur between 1230 and 1630, and is combined with a Recruit PX call.

The Phase II Male Issue done over the course of two days. A male recruit company is divided into two series, of three platoons each. The lead series is scheduled for the first day of the issue and the follow series is scheduled for the following day. The first two platoons of the series are scheduled from 0700 to 1100 and the remaining platoon(s) is scheduled from 1300 to 1630. During this time, measuring, issuing, fitting, and first tailoring occurs.

The Phase II Female Issue is an all day affair. Due to the small size of the female training companies, the entire company is processed.

4.4 Non-Recruit Issues

MCRD-PI provides limited uniform support to non-recruits. This support is in the form of periodic bulk sales of chevrons are made to the Recruit Training Regiment, supplemental issues made to active duty Marines, and the operation of the Cash Sales Store.

4.4.1 Bulk Sales

Periodically, Clothing sells bulk chevrons to the Recruit Training Regiment that are provided as a gratuitous issue to recruits. The Recruit Training Regiment requests these items on a MILSTRIP document citing local funding authority.

4.4.2 Supplemental Issues

Supplemental issues are clothing issues made to active duty Marines for special requirements, or under unique conditions. For example, a Marine assigned to special duty might be provided a supplemental issue of additional uniform items necessary to perform that duty or under special circumstances; e.g. Uniform issues to Navy personnel serving with Marine Corps units, maternity uniforms, etc. MCRD-PI processes these supplemental issues from their Cash Sales Store stocks.

4.4.3 Cash Sales Store

MCRD-PI operates a Cash Sales Store to provide retail sales of uniform items, both new and used, to authorized patrons. Typical sales include additional camouflage uniforms to recruits and recovered clothing (reduced cost) sales to active duty Marines. Sales are processed through a cash register system that records only total daily dollar sales by Officer and Enlisted sales. The Cash Sales Store operations and inventory are not part of this STP, except for the capturing of the new clothing issues from bulk inventory to the Cash Sales Store.

4.5 Warehouse Facilities/Replenishment

MCRD-PI uses a combination of bulk storage locations, issue points, information systems, and manual procedures to received, store, move, and issue uniforms to male and female recruits.

4.5.1 TMO Facility

The bulk warehouse receives its replenishment from the Traffic Management Office (TMO) facility as deliveries are received on a weekly basis, typically from the Virginia Lion Vallen facility. The TMO is utilized as a central receiving and holding area. Trucks are unloaded, and the freight held for pickup by any of the multitude of recipients.

4.5.2 Bulk Warehouse – Location 10

The bulk warehouse has a truck that travels to the TMO, reloads the Lion Vallen shipment, and delivers the shipment to the bulk warehouse. In similar fashion, the bulk warehouse staff unloads the truck and prepares the stock for storage. As is done at each of the issue lines, each receipt is entered into a database, and then stored either on pallet racking or within a carousel system.

Each case of goods that is stored on the carousels requires recognition of the storage location to be utilized, and confirmation that the storage location was actually available for use. Through this process, the carousel lines are slowly refilled. When requests are received for replenishment of the issue lines, each case of goods is retrieved one at a time from the carousel line and placed on an open cart for delivery.

A vehicle and cart line pulls the carts, not much different from the luggage tugs and carriers at airports, except that the carts are not covered – thus inclement weather forces abandonment of the effort until the weather has passed.

4.5.3 Phase Line Replenishment

Prior to receiving the recruits, the issue area was stocked with replenishment inventory from bulk stores. The issue areas have a mix of electronic carrousel, gravity shelving, and static pallet racking. Multiple days' inventory is held available for use, however replenishment occurs as needed on a daily basis.

The Phase I issue area has electronic carrousel adjacent to the issue line and static shelving for its boot inventory. The Phase II area has static, gravity, and carrousel shelving. As stock from bulk stores arrives, warehouse staff keys each case of goods into a software system that recognizes the NSN and date received, and a unique bar-coded identifying label – or 'license plate' – is printed and affixed to the case of goods. The items are then entered into the carrousel inventory system software; the carrousel shelf is filled with one of the cases of goods, the carrousel inventory system software confirms that the item has been placed on the shelf, and the carrousel rotates to the next available open location upon which to place a case of goods.

When it is time to fill the gravity shelving or open counter space on the issue line, a request for replenishment stock is given to the carrousel operators by the issue line staff. The carrousel operator enters the request, item by item, into the carrousel inventory software. The carrousel then rotates the shelving to bring the requested item to the operator's workstation. The operator removes the case of goods from the carrousel shelf, and confirms the receipt of the item – the removal of the item from the carrousel – into the operating software. The case of goods is then provided to the issue line staff for placement on the gravity shelving or the counter at the issue station.

4.5.4 Automated Storage Equipment

The bulk storage location, Male/Female Phase I location, and the Male Phase II location each have White electronic storage carrousel operated by Magic proprietary operating software which provide a significant portion of their closed-case storage capacity. The carrousel were installed when the self-service store facility was converted to a new location under contract management, and the original facility was closed, obviating the need for the carrousel. Since the carrousel were still functional, it was decided to put them to use in the retail clothing outlet.

Over the years, considerable effort has gone into creating supplementary inventory control components that aid the effort to account for the stock stored within. Meaningful labor is devoted to the task of providing auditable tracking data, allowing for accurate storage and dispensing of the inventory, as well as a mechanism for creating a record from which to charge the clothing issue program for the use of the stock issued to the recruits.

4.6 Information Systems

MCRD-PI is currently managing clothing items utilizing an inadequate combination of inventory management and data base systems. Over the years, considerable effort has gone into creating supplementary inventory control components which aid the effort to account for the stock stored within the carousel system and other storage aids. These efforts, however meaningful in addressing specific system shortcomings, are independent in design and incapable of direct interconnectivity. As a result, considerable labor effort is directed toward accessing and maintaining the data. During this site visit, interviews with key personnel at MCRD-PI were conducted in order to gain an in-depth understanding of how the current inventory management of clothing stock was accomplished.

4.6.1 MUMMS

MUMMS is the Marine Corps Class 1 mainframe computer software system that is used to provide inventory control and replenishment actions for Navy Working Capital Stock Fund inventories. Due to processing timeframes and the batch style of processing, the information displayed in MUMMS is out-of-date and not conducive to operating in a fast-paced, low-inventory levels environment. Further, MUMMS does not provide DSCP asset visibility of stocks at MCRD-PI.

4.6.2 BIFRS-Retail

The Balanced Inventory Flow Replenishment System-Retail (BIFRS-Retail), was developed by the Clemson Apparel Research (CAR), and contains a decision support system capability where historical data and other user-determined parameters are used to compute replenishment requirements.

4.6.3 BIFRS-Lite

BIFRS-Retail contains data retrieval and manipulation capability to produce management information screens for inventory managers, called BIFRS-Lite. Data displayed includes dues-in order status, tariff and usage data, current on-hand in bulk inventory, and recent transfers of inventory to issue points. Inventory and document status data is imported from MUMMS and the AAVSDatamart into BIFRS-R to produce the BIFRS-Lite screens and to calculate the recommended buy lists.

4.6.4 Dove Track Automated Carousel System

Dove Track is a stock location program used for picking or stocking items stored in carousels. It is a PC based single workstation system/multiple carousel control program that can control a number of vertical and/or horizontal carousels.

4.6.5 Inventory Data Collection System (IDCS)

The Inventory Data Collection System (IDCS) is a CAR developed software used to convert output from the Dove Track Automated Carousel System to MILSTRIP A5A transfer transactions to update MUMMS with the movement of inventory out of the bulk warehouse to the issue points. The IDCS incorporates the capability to generate a "license plate." The license plate is a sticker that contains NSN, case quantity, and a unique license plate number to track the internal movement of inventory, by case lot quantity.

4.6.6 Automated Issue Point Reporting System (AIRS)

The Automated Issue Point Reporting System (AIRS) is a locally developed program that Issue Points use to request replenishment stock from the bulk inventory warehouse.

4.6.7 Unit Diary Marine Integrated Personnel System (UDMIPS)

The Unit Diary Marine Integrated Personnel System is a Marine Corps Class 1 database system that contains personal information on all Marines and recruits. Currently, this system does not contain recruit personal information until after arrival at recruit training. However, after October 1, 2001 recruit information will be available prior to arrival at recruit training. As a Class 1 system, the reliability and long-term viability exceeds those of the newly introduced Recruit Smart Card system.

4.6.8 Linkages to ARN-Developed Systems

In the future, there will be no linkages between any MCRD-PI systems and ARN-developed systems. Following the conversion of inventory ownership to DSCP with the installation of QLM/Local, MUMMS will no longer be used to perform inventory management functions. Receipts and adjustments will be performed by the QLM/Local system. VIM/QLM-Central is used to generate replenishment actions based on recruit issues reported by the AutoData Scan Forms.

4.7 Operational Data

Highlights of operational data for the previous 12 months from August 2000 to July 2001 are listed below.

- | | |
|--|--------------|
| ➤ AOA Requisitions: | 10,293 |
| ➤ D6 Receipts: | 9,418 |
| ➤ Number of NSNs managed (excluding vendor-managed dress shoes): | 1,649 |
| ➤ Yearly Stock Fund Budget: | \$21,784,917 |

4.7.1 Yearly Sales by Issue Point:

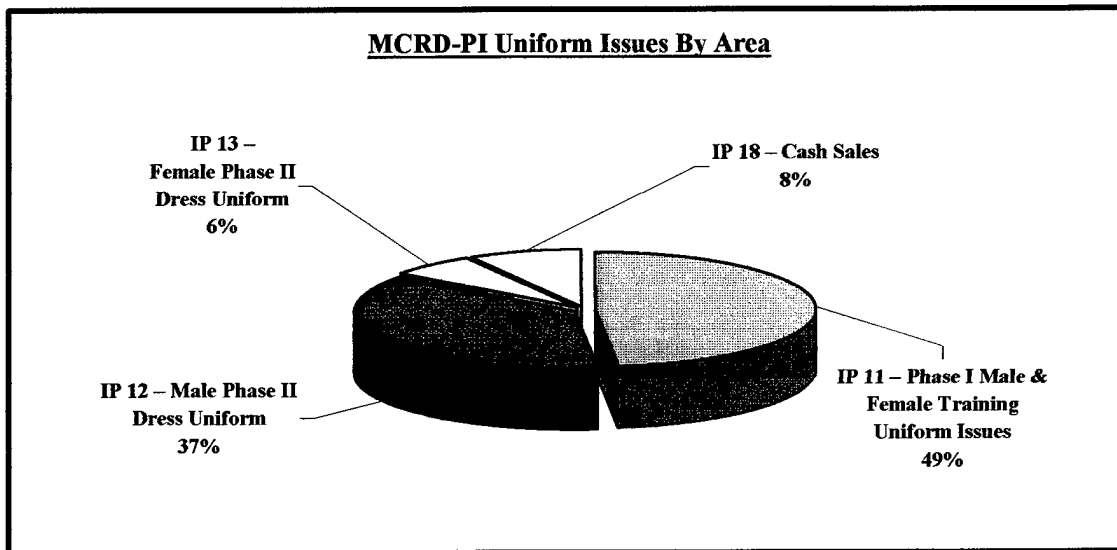
The following table and graphs presents the issues by each of the key operational areas supporting Recruit Clothing issues at MCRD-PI. These areas include:

- IP 11 – Male/Female Phase I Training Uniform
- IP 12 – Male Phase II Dress Uniform
- IP 13 – Female Phase II Dress Uniform
- IP 18 – Cash Sales

Month/Year	IP 11	IP 12	IP 13	IP 18	Total
Aug-00	\$1,181,057	\$1,072,976	\$223,589	\$220,092	\$2,697,714
Sep-00	\$1,111,019	\$1,122,880	\$77,329	\$220,092	\$2,531,320
Oct-00	\$694,616	\$501,964	\$94,432	\$325,095	\$1,616,107
Nov-00	\$1,175,707	\$1,463,107	\$242,676	\$297,883	\$3,179,373
Dec-00	\$545,968	\$360,925	\$75,628	\$76,821	\$1,059,342
Jan-01	\$1,131,023	\$680,358	\$114,600	\$248,672	\$2,174,653
Feb-01	\$796,710	\$612,082	\$130,282	\$71,549	\$1,610,623
Mar-01	\$626,895	\$467,196	\$67,276	\$106,215	\$1,267,582
Apr-01	\$452,512	\$146,940	\$41,245	\$68,388	\$709,085
May-01	\$775,937	\$479,691	\$148,396	\$119,154	\$1,523,178
Jun-01	\$1,266,319	\$401,840	\$70,370	\$76,514	\$1,815,043
Jul-01	\$1,496,580	\$1,271,043	\$218,360	\$81,118	\$3,067,101
Total	\$11,254,343	\$8,581,002	\$1,504,183	\$1,911,593	\$23,251,121

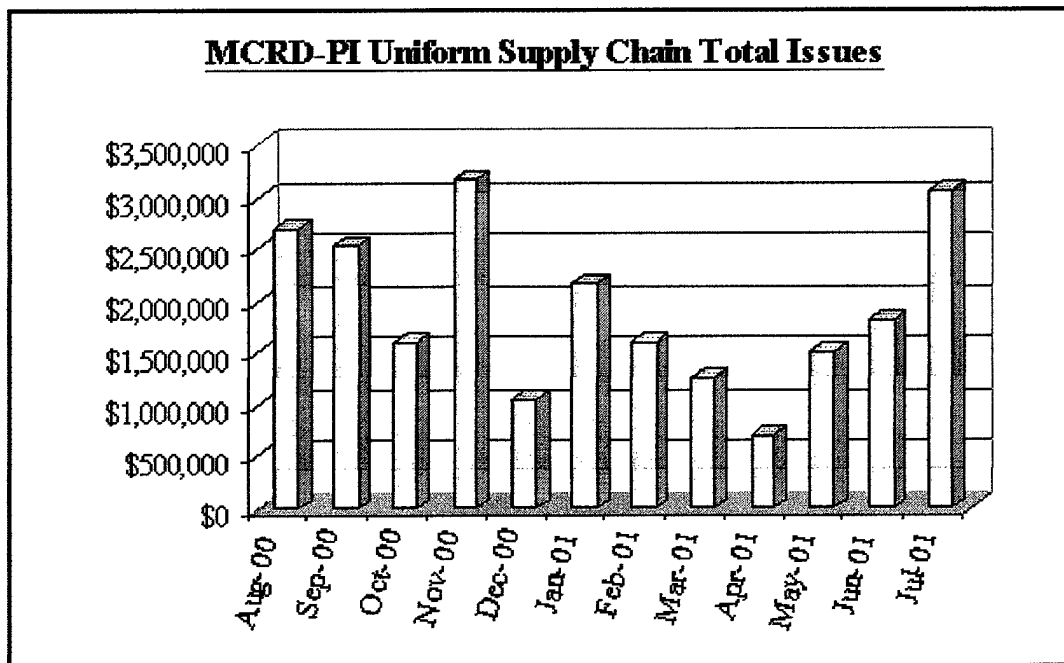
Table 2 – Yearly Sales/Issues by Month

This information is displayed graphically below.

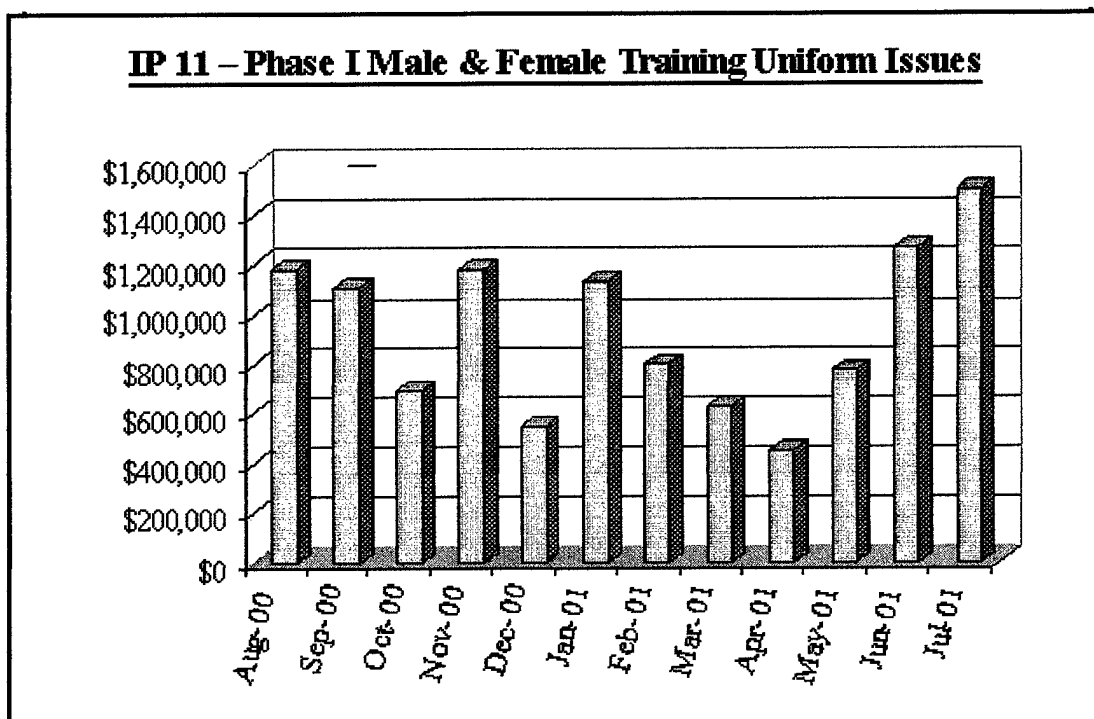


Graph 1 – MCRD-PI Uniform Issues by Area

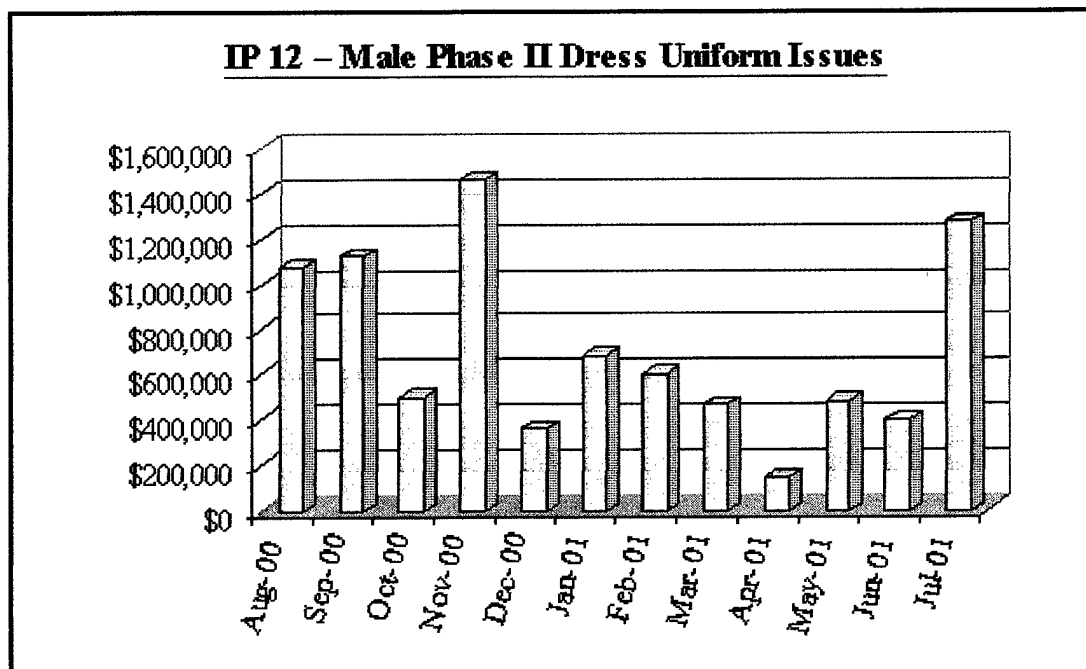
The charts below show the total uniform issues at MCRD-PI on a month-by-month basis for the last 12 months for the total supply chain as well as for the different issue areas as indicated.



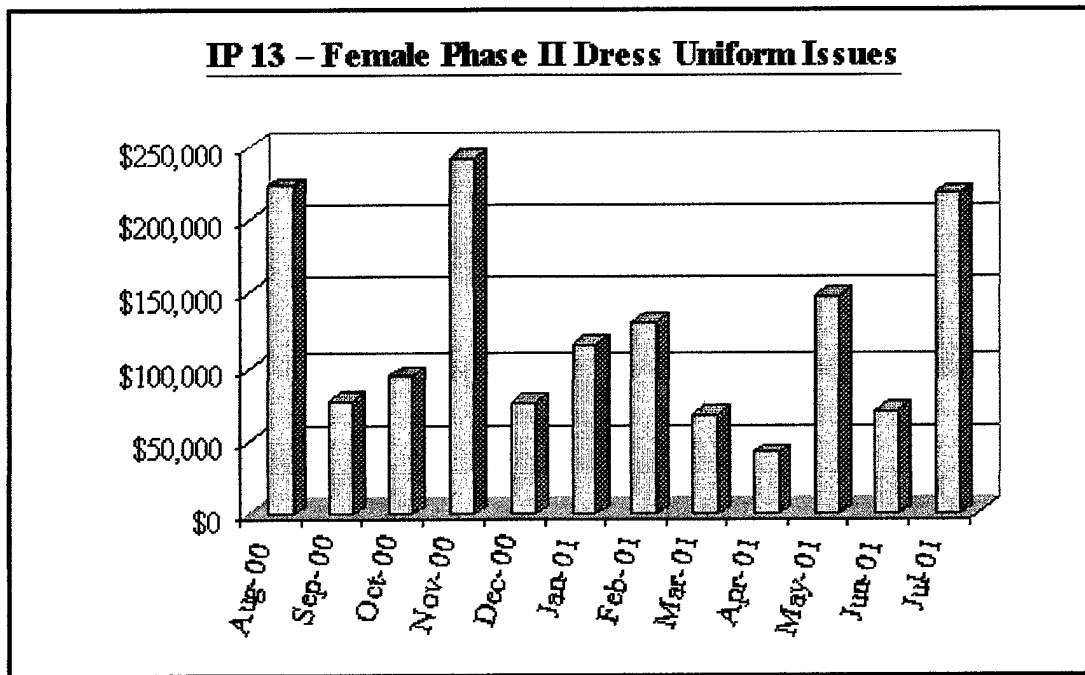
Graph 2 – MCRD-PI Uniform Issues by Month – August 2000 to July 2001



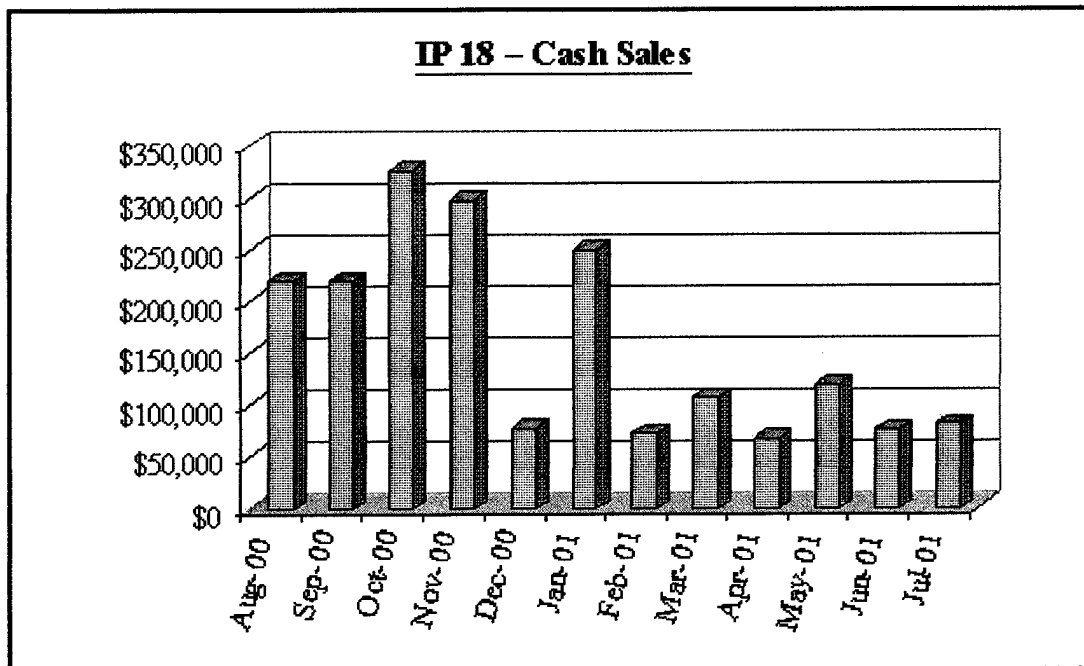
Graph 3 – Phase I Male & Female Training Uniform Issues – August 2000 to July 2001



Graph 4 – Phase II Male Dress Uniform Issues – August 2000 to July 2001



Graph 5 – Phase II Female Dress Issues – August 2000 to July 2001



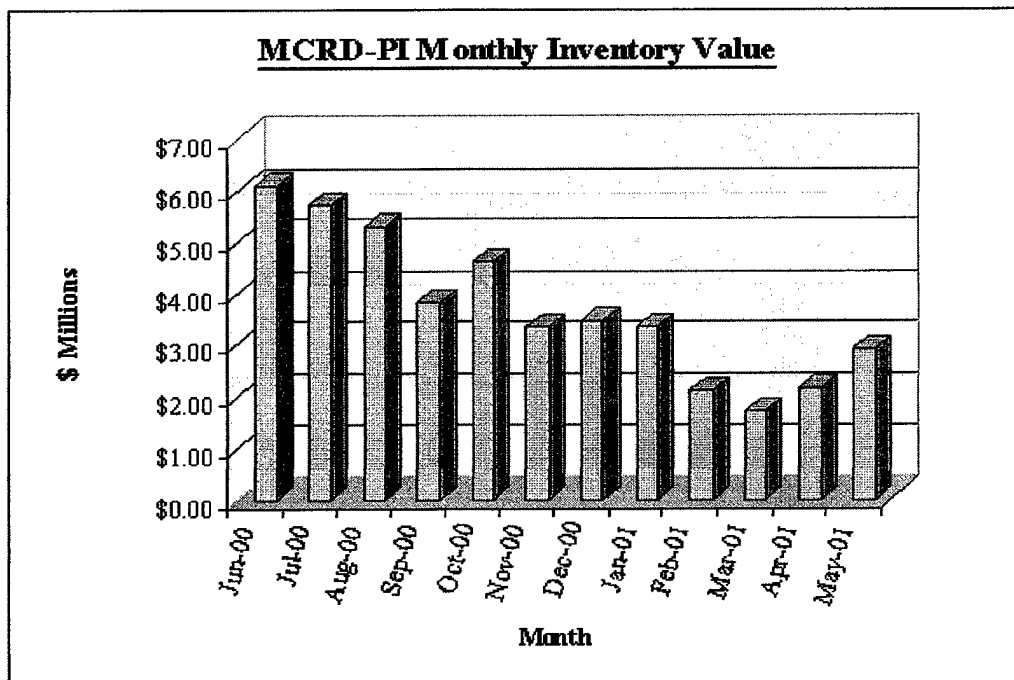
Graph 6 – MCRD-PI Cash Sales Issues – August 2000 to July 2001

4.7.2 Monthly Value of MCRD-PI Uniform Inventory

Month/Year	\$ Value
Jun-00	\$6.1M
Jul-00	\$5.7M
Aug-00	\$5.3M
Sep-00	\$3.8M
Oct-00	\$4.6M
Nov-00	\$3.35M
Dec-00	\$3.45M
Jan-01	\$3.35M
Feb-01	\$2.1M
Mar-01	\$1.7M
Apr-01	\$2.15M
May-01	\$2.9M

Table 3 – MCRD-PI Monthly Value of Uniform Inventory – June 2000 to May 2001

This information is displayed below graphically and indicates that MCRD-PI was actively reducing retail inventory levels in preparation for conversion.



Graph 7 – MCRD-PI Monthly Inventory Value – August 2000 to July 2001

5.0 IMPLEMENTATION OF QLM/LOCAL – MCRD-PI

This section provides detailed information on the activities related to the implementation of QLM/Local, the conversion of local programs to support “wholesale local” inventory operations, and the lessons learned in the process. Information is also provided on the current operations of the integrated systems supporting operations today at the MCRD-PI.

5.1 QLM/Local Rollout Installation Process Overview & Protocol

5.1.1 Initial Site Visit.

The basis for the implementation of QLM/Local and evaluation of the operational impacts of converting the retail inventory at MCRD-PI to wholesale-local inventory owned by DSCP was the QLM/Local system implemented at five U.S. Army RTCs and MCRD-SD. Following ARN Program Management approval of the transition plan for Parris Island, the team conducted an Initial Site Visit. The major tasks accomplished during the Initial Site Visit included:

- Coordinated site visit schedule;
- Finalized the implementation schedule;
- Identified the implementation group;
- Achieved final concurrence of the format of the scan forms (Optical Imaging Forms) by hands-on testing;
- Finalized communications requirements;
- Finalized the method for capturing non-recruit issues;
- Reviewed demand history and discuss initial reorder points; and,
- Reviewed a draft system acceptance plan.

5.1.2 Implementation Timeline.

The following timeline was prepared based on the assessment and the initial site visit.

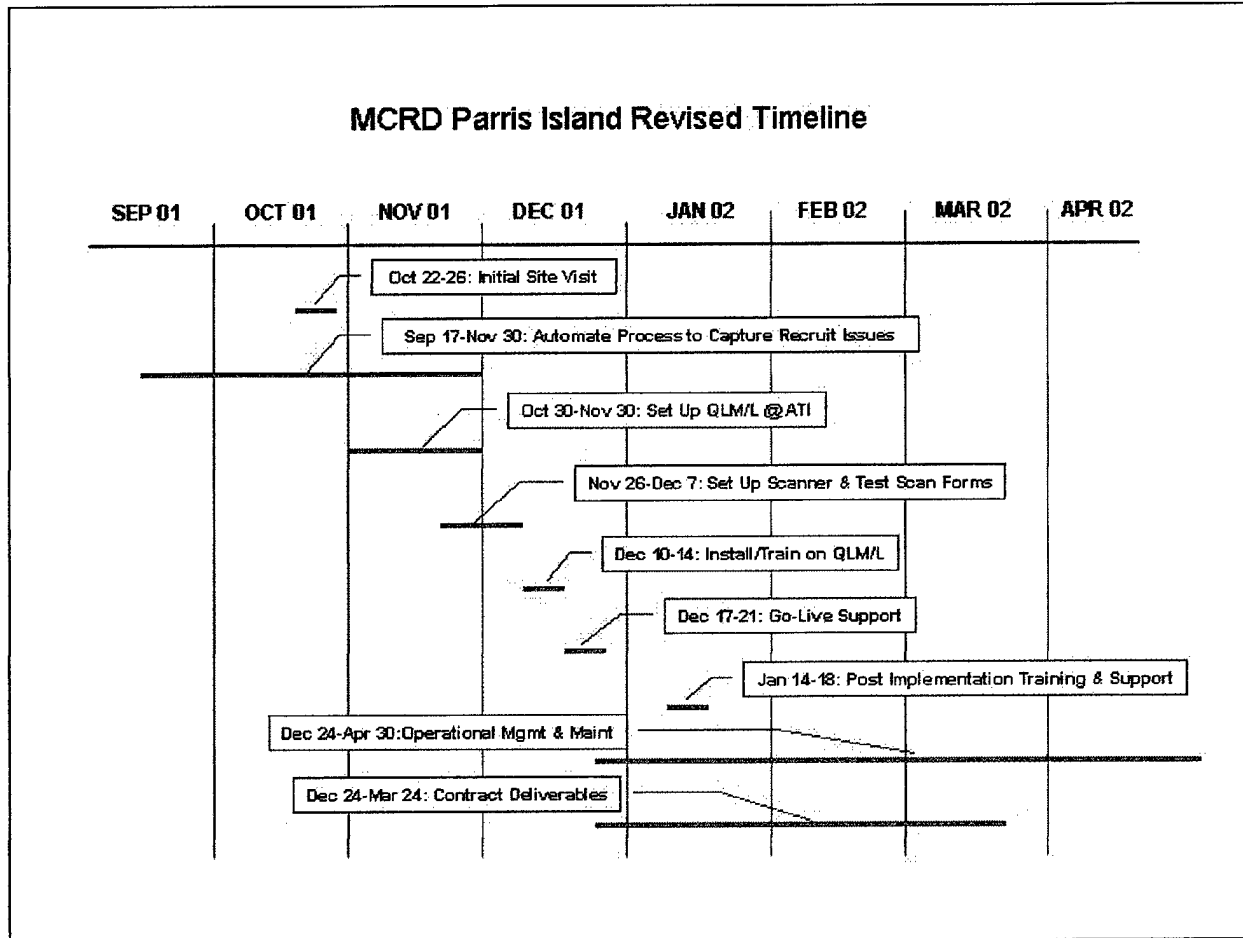


Figure 3 – MCRD – P.I. Implementation Timeline

5.1.3 Automate Process to Capture Recruit Issues.

This milestone on the timeline included a Scan Form Site Visit to initiate the process for capturing recruit issues. The major tasks accomplished during the visit were:

- Installed and Tested Scanner hardware and Autodata software;
- Tested the scan forms;
- Mapped the scan forms;
- Tested programming into tables and script modifications; and,
- MCRD-PI personnel trained on using the scan forms.

5.1.4 Set Up QLM/Local, Scanner & Test Scan Forms.

The next milestones were the installation of the QLM/Local server, initial training on the QLM/Local system, and finalization of the scan form process. The major tasks accomplished were:

- Installed the QLM/Local server;
- Tested the local communication interfaces for support of daily operations and remote maintenance;
- Conducted initial user training;
- Assisted in establishing local procedures for daily use of the system;
- Provided support for the turn-over physical inventory;
- Conducted the capitalization/decapitalization of the inventory;
- Activated MCRD-PI in VIM and QLM/Central to initiate the replenishment process;
- Completed implementation of final approved scan forms;
- Conducted final scan form training; and,
- Go-Live with DSCP ownership of the inventory and utilizing the scan forms to capture recruit issues.

5.1.5 Post Implementation, Training and Support.

The next milestone was QLM/Local post implementation training. The major tasks accomplished during the post implementation support activities were:

- Ascertain areas or functions where additional training was needed, and conduct the training;
- Review QLM/Local data, particularly stock location assignment;
- Assist in inventory management; and,
- Answer questions posed by QLM/Local users with explanations and additional training.

5.1.6 Operational Management and Maintenance.

The implementation of QLM/Local was followed by an extended period of direct management support, system maintenance, and training to ensure comprehensive knowledge of the system and attainment of the inventory reduction and a balanced flow of apparel items. For details of assessment and implementation see documents at Appendix D.

5.2 Data Architecture and Data Flows

A key task during the early stages of project support was the focus on finalizing data flow requirements and establishing and procuring the final hardware configuration. As part of

the data flow requirements, AdvanTech worked closely with DSCP and MCRD-PI personnel to refine the necessary data inputs, wholesale MILSTRIP formats required, and other modifications to system capabilities necessary to support QLM/Local operational requirements.

5.3 Operational Issues

During the course of the assessment, several issues were identified. The key issues and related recommendations are summarized in this section.

5.3.1 AutoData Scan Form Processing

Prior to the commencement of this project, clothing personnel from MCRD-PI visited MCRD-SD to view operations under the wholesale-local concept and the use of the scan forms to capture recruit issues. A primary concern from MCRD-PI personnel was the perceived amount of time necessary for recruits to fill-out the issue scan forms being used at MCRD-San Diego. Any process that would cause a clothing issue event to exceed Training Schedule time frames is viewed unfavorably by the command. During ARN implementation additional changes were made as necessary to preclude any delays.

5.3.2 Impacts on Legacy Systems

As a result of changes implemented during Phase 1, MUMMS could be eliminated except that it is used for support of other supply management functions at MCRD-PI. The elimination of MUMMS in the future will result in the loss of internal carousel location visibility of assets. New operational procedures were developed by MCRD-PI during Phase I to accommodate the changes with the transfer in ownership to DSCP and the implementation of QLM/Local. The related requirements will be addressed further by follow-on Phase II support refining systems for local operations. QLM/Local provides for multiple locations per NSN, but reflects only a single on-hand quantity.

5.3.3 Inventory Management Procedures

The loss of the BIFRS-Retail legacy system resulted in the loss of screens that managers used to view inventory balances/shortages, replenishment document status, and recent internal movements of stock. The loss of this local system also reduced the ability to conduct causative research into inventory variances, since the internal movement of assets information was no longer be visible. The implementation of the new ARN systems required new operational procedures to be developed and implemented to meet requirements. These changes will be reviewed again during Phase II and addressed with subsequent support following review of requirements and approval by ARN program management.

5.3.4 Due Member Tracking

The implementation of QLM/Local as a replacement for local systems previously in use required new local operational procedures to be developed and implemented to meet requirements and provide the ability to track Due Member requirements.

5.3.5 Implementation Issues

5.3.5.1 Inventory Management Issues Post Conversion to ARN Systems

Following conversion to wholesale local inventory, MCRD-PI no longer had a legacy system to report issues, particularly issues to the Cash Sales Store and non-recruit issues. At the beginning of FY 2002, changes to both the male and female bag issue occurred. Since conversion to wholesale local occurred after the beginning of FY 2002, only one set of scan forms needed development at project start.

The Marine Corps plans to adopt a new style of camouflage utility uniform during FY 2002. Based on decisions by the Marine Corps, these new uniform items will not be supported by DSCP and will be managed by a vendor provided inventory system. When this occurs, the scan forms for both the male and female Phase I and T-15/16 issue, and associated data tables will require revision to delete the current camouflage uniform items. The new uniform will not be added to the scan forms.

At project end, the tentative start date for adopting the new camouflage utility uniform was projected as June 2002. Implementation of new systems and processes will require new operational procedures to be developed and implemented as has been done at other recruit training centers. Subsequent Phase II support will focus on additional needs based on specific requirements.

5.3.5.2 Reporting of Issues by Case Lot Method

This was another issue that surfaced during implementation. MCRD-PI proposed that issues be reported by case lot method since this method would complement the internal systems established to track individual cases of inventory through the existing MCRD-PI carousel storage system.

With this proposed method, daily issues (j0A transactions) would comprise a cumulative case lot quantity by NSN versus actual issues processed. Demand would reflect movements of case lot quantities rather than actual daily usage. Two unresolved questions pertain to this alternative: 1) Determination of accurate uniform costs to be charged against Marine Corps Manpower appropriations and against Marine Corps Reserve appropriation is difficult with the case lot method; and, 2) Issues by the case lot method create a substantial quantity of inventory on the issue line that has been sold to the Marine Corps and is unaccounted for at a detailed level.

The first issue has been forwarded to Marine Corps Headquarters, but at project end had not been resolved.

Each of these issues is anticipated to require additional evaluation and support to resolve any open issues during proposed Phase II.

6.0 QLM-CENTRAL & QLM/LOCAL RELATIONSHIPS

The following figure illustrates the relationship of the ARN systems used to provide support at MCRD-PI. These include the use of VIM/QLM-Central and QLM/Local implemented during Phase I support.

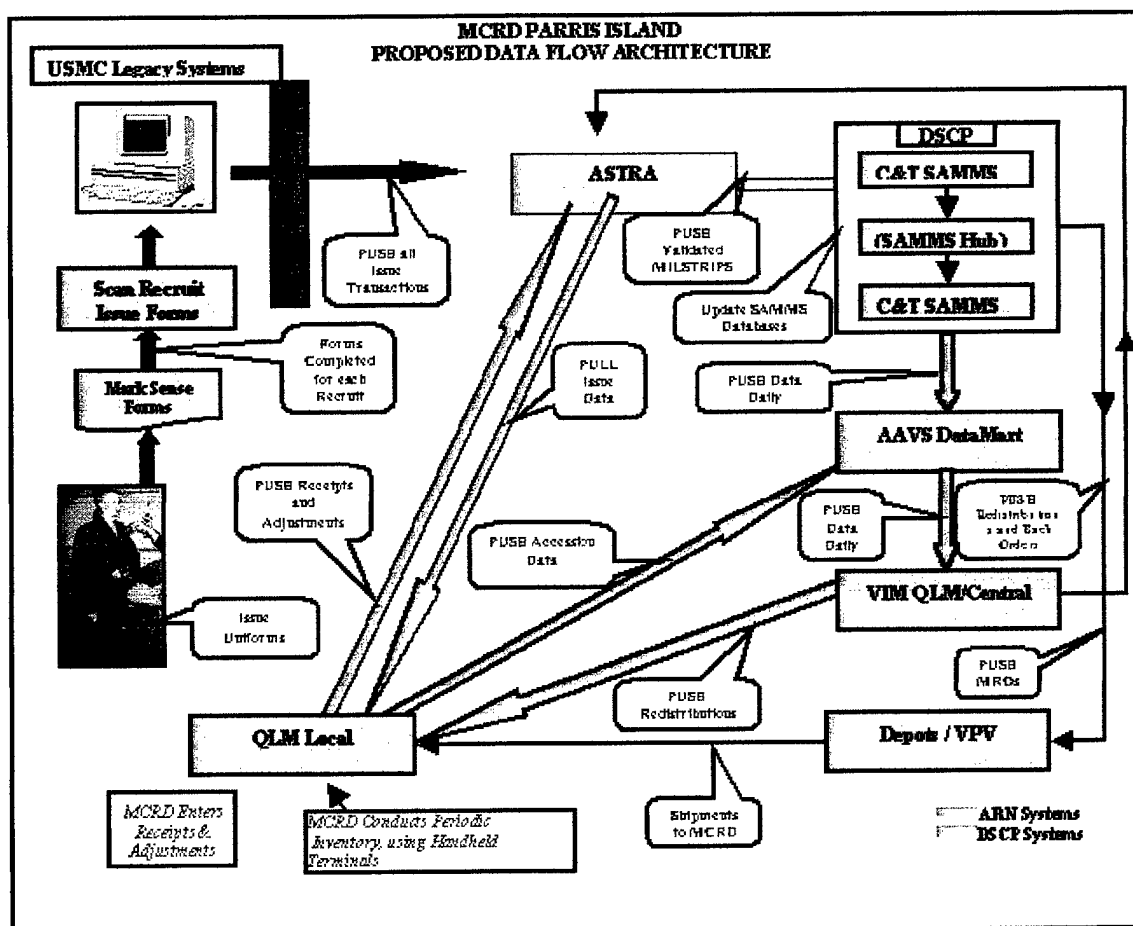


Figure 4 – QLM/Local & QLM/Central Concept

As indicated, the connection from the QLM/Local to ASTRA is provided through a dial-up connection to a local Internet Service Provider (ISP) since Digital Subscriber Links (DSL) were not yet available at MCRD-PI.

In the future, when DSL or cable modem service becomes available, it will be possible to change support from “pulling” update information from ASTRA to having ASTRA “push” update information. Also, the current scripts provide updates to be handled automatically late in the evening after routine business hours.

The AAVS DataMart, as a single data repository, provides asset visibility data on items maintained at each wholesale location for support of customer requirements. Information is transferred from C&T SAMMS to the AAVS DataMart to VIM/QLM-Central and to QLM/Local, as necessary. This provides for the Decision Support System capabilities accessed through VIM/QLM-Central. This transfer of information is also used to decrement the issues from the QLM/Local stock status.

6.1 Processing Recruit and Non-Recruit Issues

Capability was created at MCRD-PI to push issue transactions from both the Scan Forms Issues Collection Module as well as the existing legacy systems via FTP to ASTRA. These transactions are then forwarded to C&T SAMMS. The data from the processed AutoData forms is transmitted directly from the AutoData Scan PCs/workstations.

Non-recruit issue data is furnished in an electronic file to the AutoData Scan PCs/workstations throughout Phase I.

6.2 QLM/Local Processes Receipts

MCRD personnel now process all receipts in QLM/Local. The receipts are processed using the bar code data contained on the DD1348-1, or by manually entering the document number from the DD 250 Form. QLM/Local then generates either the D6Kor D6L MILSTRIP documents. These MILSTRIPS are then pushed daily to ASTRA where they are validated and then pushed to C&T SAMMS.

6.3 Inventory Adjustments

MCRD personnel now process all inventory adjustments as inventory gains or losses into QLM/Local. These adjustments can result from: Physical Inventories; Cycle Counts; Receipts against invalid document numbers; Recruit Exchanges; Returns of Condition Code "A" items into the Inventory; and defective goods. QLM/Local then generates the D8A (Inventory Gain) or D9A (Inventory Loss) MILSTRIP documents. These MILSTRIPS are pushed daily to ASTRA where they are validated and the pushed to C&T SAMMS.

6.4 Recruit Budgets

MCRD personnel now enter and maintain their Recruit Accession Plans for both male and female recruits in QLM/Local. This data is then pushed to the AAVS DataMart where it is used within VIM/QLM-Central as part of calculating the Reorder Objectives.

6.5 Replenishment Scenario

VIM/QLM-Central generates A2A or A0A transactions to replenish the inventory at MCRD-PI. These replenishments are based on distribution rules and reorder parameters that permit the DSCP Item Managers to manage wholesale-local inventory on an exception basis.

A2A documents are generated to move stock from other DSCP Depots (or Bill and Hold locations). A0A documents are generated for the Direct Vendor Delivery (DVD) items.

These functions are now automatic unless there is a special situation requiring management by exception. AdvanTech established initial inventory stock levels in conjunction with DSCP and MCRD-PI. After VIM/QLM-Central collects sufficient usage data the decision support module will then begin to manage the inventory levels, with minimal IM oversight.

7.0 Program Conversion & Modification Activities

The final programs and procedures were provided for data transfer between the scan forms and QLM/Local to ASCOT and VIM/QLM-Central. As implemented, the data is “pushed” from the MCRD-P.I. into QLM/Local via the AAVS DataMart. The links go from QLM/Local to VIM/QLM-Central, VIM-QML/Central-Lite to SAMMS, and from the AAVS DataMart to VIM/QLM-Central.

7.1 Current Procedures Used at MCRD-PI

In the past, Parris Island developed various forms to capture uniform issue size and quantity data. They use these forms at the Phase 1 Issue, the T-15/16 Issue and the male and female Phase 2 Issue.

Recruits fill out name, SSN, platoon number, issue date, and designate either Regular or Reserve status. At the Phase 1 Issue, recruits initialed each uniform item received. Only boot sizing data was annotated on the form. A Clothing employee did the size annotation. The boot size data was used to verify the size issued when a recruit returned to Clothing Branch requesting an exchange of boots due to being issued the wrong size boots.

At the Phase 2 Male issue, a Fitter measured the recruit to determine the size to be issued. The Fitter communicated the size to a recruit platoon representative who in turns annotated the size in the appropriate space on the form. The form was then used as a pick ticket as the recruit went through the issue line. After the issue process, the recruit initialed each uniform item received. Any subsequent size exchanges were marked on the form.

The recruit and sizing data information on the forms was not used to report issues, nor assist in calculating replenishment data. Under the MUMMS/Navy Stock Fund system, replenishments were calculated based on reorder parameters established for the bulk inventory issue point only and are based on movements of case quantity movements of inventory from the bulk warehouse to the individual issues points. Issues were reported weekly with a single dollar value transaction, categorized by Active and Reserve component recruit.

7.1.2 Using Optical Imaging Forms (Scan Forms)

Optical imaging forms (scan forms), similar to those used at MCRD-SD, were implemented to capture daily issues to recruits. New forms were developed and are now used at the Phase 1, T-15/16, and Phase 2 Male and Female issues. The forms were designed to minimize the amount of marking necessary.

Following MCRD-PI's recommendations and input, the forms were designed to allow a non-scanning area as a left column where initial sizing data could be annotated. This allows the form to be used as a pick ticket and an issue document. Initial training on

filling out the forms was conducted. After each issue event, the forms are collected and passed to the administrative office where they are processed through the scanner.

The scanner and associated software reads and collects the issue data, consolidates NSN and quantity data by Active or Reserve component and formats the data into a j0A issue MILSTRIP transaction file which is transmitted via ftp to the QLM/Central. The Active or Reserve designation determines the Fund Code that is entered in the j0A, so that the correct Marine Corps appropriation can be charged. Nightly, the QLM/Local workstation downloads the reformatted issue transactions and updates the inventory on hand quantities. Returns, exchanges, inventory adjustments, and receipts keyed into QLM/Local are uploaded to ASTRA and forwarded to SAMMS after validation checks are completed. The j0A issue transaction is then transmitted to the ASCOT ftp site for entry into SAMMS. DSCP uses the j0A issue data to prepare and support the monthly billing document transmitted to the Marine Corps for payment.

7.1.3 Forms Requirements

A total of twelve forms were developed for MCRD-PI. Seven are used to capture recruit bag items issues. Other forms are used for incentive dress blue uniform issues and for miscellaneous issues to active duty Marines. New forms for the female uniform issues were developed. A comparison of the forms developed for use at MCRD-PI with those developed and in use at MCRD-SD is provided in the following table.

FORMS COMPARISON BETWEEN MCRD-PI AND MCRD-SD

MCRD-PI ISSUE	APPLICABILITY	MCRD-SD ISSUE	MCRD-SD FORM	PURPOSE
Phase 1 Male and Female (Night of Arrival)	Two new forms needed. In addition to items issued at SD, PI also issues boots, liner socks, and 3 sets of cammie uniforms. Females are not issued jockey shorts.	Night Room (Night of Arrival)	001	Issue of PT gear, underwear, boot socks, cammie caps, and one cammie trouser.
T-16 Male and Female Issue (Training Day 16)	Two new forms needed. Issue of 2 sets of cammies uniform and dress shoes.	None	NA	NA
Phase 2 (Male Dress Uniform)	Usable with modifications to delete dress shoes from form and associated data tables.	2L (Male Dress Uniform)	003, 004, 005	Issue of dress uniform. Due to large number of items 3 pages are required.

MCRD-PI ISSUE	APPLICABILITY	MCRD-SD ISSUE	MCRD-SD FORM	PURPOSE
Phase 2 (Female Dress Uniform)	New form(s).	None	NA	NA
Incentive Blues	Male form usable. Need new form for female issue.	HonorGrad Blues Issue	006	Issue of incentive Dress Blue uniform to Honor Graduates.
NA	NA	Miscellaneous Issues	007	Issue of Supplemental Uniform Items
None	NA	Recruiter's School Issue (Male & Female Issue)	008, 009, 010	Issue of Dress Blue uniform to male and female Recruiter's School students.

Table 3 – MCRD-PI and MCRD-SD Forms Comparison

MCRD-PI expressed concern with the amount of time necessary for recruits to fill out the forms. There were no particular concerns expressed regarding the time necessary to process the forms.

The AutoData Scannable Office software and scanner hardware was installed on MCRD-PI owned workstations in the Clothing Administrative office. The two scanner systems were installed on workstations, which are "inside the firewall" network security system. The second workstation is for backup purposes, but also provides the capability for two workstations to be scanning forms simultaneously. The programming necessary to convert the scan data into j0A transactions is capable of combining the data from two workstations and creating one daily issue file for transmission by ftp to QLM/Central.

7.1.4 Forms Development

Forms development followed a five-step process at MCRD-PI including: Design, Data Mapping, Programming, Testing, and Training. These are discussed briefly below.

7.1.4.1 Design

The format of the form was determined in conjunction with what data was to be captured. Form design required significant input and coordination with MCRD-PI.

7.1.4.2 Data Mapping

The data mapping included development of data tables and processes to link specific data fields on the form with specific records in the data tables. This ensured that the item selected on the form translates into the correct NSN and quantity for issue reporting requirements.

7.1.4.3 Programming

Programming was done to establish the process of gathering and combining the output of the data mapping process to generate appropriate and accurate issue transactions.

7.1.4.4 Testing

Completed forms processed to test and ensure that the data accumulated met pre-determined results, and for making corrections as necessary.

7.1.4.5 Training

Hands-on training was providing to personnel at MCRD-PI who are tasked with processing the forms.

8.0 RESULTS ACHIEVED & METRICS

This section provides summary information on the results that were achieved at MCRD-PI to date. It is important to note that the support has not ended with the completion of this project and that refinements continue to be made to fine-tune operational support and efficiency of the supply chain activities.

There were several objectives defined at the start of the project. The desired results from new systems implemented and the related accomplishments include the following:

➤ **Asset Visibility –**

The ability for DSCP to efficiently see all data is required to meet ARN's objective to "see" on-hand inventory data regardless of the location at the RTC. This is the core functionality required as an essential aid to decision-making and has been successfully accomplished.

➤ **Legacy Interface –**

The ability of the ARN solutions/software to work efficiently with existing external systems to meet current military department requirements was a key requirement, and has been successfully accomplished.

➤ **Current Information –**

The ability of the proposed solution to provide access to current information on an as needed (i.e., timely) basis has been successfully accomplished.

➤ **Improve Operational Efficiency –**

This criterion provides an estimate of the potential impact of the proposed solution to enhance the efficiency of MCRD-PI operations. This includes impacts on personnel support requirements for data collection, processing and materials handling activities. This has been successfully accomplished, and additional improvements including the use of automated data capture (bar code labels and hand held bar code scanners) capabilities are in process of being implemented in the follow-on support and maintenance activities.

➤ **Improve Effectiveness –**

The potential impact of the proposed solution to have a favorable impact by supporting the management decision-making process – both at MCRD-PI and DSCP, and this has been successfully accomplished. An example would be enabling minimum total inventory with lowest stock-outs.

9.0 SUMMARY OF BENEFITS ACHIEVED

This project provided several benefits and a substantial return-on-investment for DLA and DSCP. It enhanced management of the "wholesale-local" inventory. Benefits will be provided through the use of comprehensive decision support tools now available in VIM/QLM-Central.

By using this proposed technology, DSCP now receives timely, accurate recruit specific issue data. This gives the DSCP Item Managers the ability to accurately plan production requirements with their Manufacturers. It provides the data necessary to allow VIM/QLM-Central to accurately predict future wholesale-local inventory requirements to ensure the proper amount of inventory is located at MCRD-PI when it is needed. This data allows the DSCP Item Managers to better predict the future requirements for all new items that could be added to the Recruit bag.

VIM is being used as a common user interface, i.e., application front-end, to access the QLM capabilities, and the MILSTRIP data generated based on the activities at MCRD-PI. VIM provides access to VIM/QLM-Central and AAVS DataMart for IMs to extract and review data on all current asset inventories and related requisitions in SAMMS. VIM/QLM-Central extracts essential data from the AAVS DataMart and provides DSCP MCRD - P.I. Item Managers with the ability to manage inventories in support of end-user requirements based on recruit load factors, their unique "shipping" plans, and other policy directives or locally established performance parameters.

VIM/QLM-Central provides decision support capabilities to evaluate stock levels and replenishment requirements at all related wholesale-local asset inventory locations, as desired and directed. These capabilities, in turn, provide DSCP IMs with the ability to manage the redistribution of assets from DSCP Depots and "Bill & Hold" locations to the appropriate location to support MCRD-PI. In addition, the linkages of VIM to BIFRS-W concepts enable DSCP IMs with the essential abilities to balance the flow of manufacturing activities.

By using the capabilities to be provided from VIM and QLM/Central with supporting BIFRS-W concepts, DSCP will be able to effect significant drawdowns of both wholesale local (MCRD) and wholesale inventories. Using these systems capabilities linked through a common-user interface - the VIM browser front-end - the DSCP IMs are able to review asset levels and manage the wholesale-local inventories at MCRD-PI.

The initial estimates of the benefits of VIM/QLM-Central viewing and managing local and remote assets were based on the business cases previously prepared by both Cal Poly and Clemson Demonstration Projects with objective support provided by the Logistics Management Institute. The projections for the ARMY CIIPs indicated approximately \$30,000,000 of wholesale inventory drawdowns would be achieved from the enhanced management of the RTC Retail inventories (see Cal Poly Business Case and accompanying Logistics Management Institute projections). In addition, an estimated \$2-

4,000,000 inventory reduction would occur at each additional Recruit Training Center supported with VIM/QLM-Central and QLM/Local capabilities.

Ultimately, the results achieved proved the concepts for centralizing the ownership of the inventories at the CIIP locations with replenishment handled as part of an integrated management of wholesale inventories. Thus, this project provided a sound framework for the future expansion of these concepts for future enhanced support of the Recruit Training Centers by the Defense Supply Center Philadelphia.

APPENDICES

Appendix A – Definition of Terms and Acronyms

Appendix B – MCRD-PI Replenishment & Data Flowcharts

Appendix C – Project Personnel

**Appendix D – Recruit Clothing Supply Chain Assessment,
MCRD-PI**

Appendix A

Definition of Terms and Acronyms

This Appendix provides a listing of acronyms used in this report. These are provided to facilitate clarity of understanding for the reader.

Appendix A - Definition of Terms and Acronyms

- ◆ **AIRS** – Automated Issue Point Reporting System. A locally developed program the Issue Point workers use to request replenishment stock from the bulk inventory warehouse.
- ◆ **ARN** – Apparel Research Network made up of selected industry and academic partners working together to develop innovative solutions for the Apparel industries support of military departments.
- ◆ **ASCOT** – Automated System for Cataloging and Ordering Textiles
- ◆ **ASTRA** - ARN Supply-chain Transaction Repository Audit. A system that receives MILSTRIP and non-MILSTRIP issue, inventory adjustment, and receipt data; validates non-MILSTRIP data; pushes data to SAMMS; and, provides an audit capability to ensure that transmitted data was received by SAMMS.
- ◆ **ARN AAVS** – the ARN Asset Visibility System being developed to provide asset visibility across the supply chain (i.e., all locations) to DSCP Item Managers and others.
- ◆ **ARN AAVS DataMart** – ARN Asset Visibility System DataMart. The single repository of all clothing and textile data used by ARN developed recruit clothing supply chain systems.
- ◆ **ASAP** – The Automated Supply Apparel Processing (ASAP) Internet Web based capability for use by manufacturers in reporting status of work in process and quantities of finished goods in their respective inventories.
- ◆ **AutoData Scannable Office** – Software suite used to develop and process the scan forms used to capture recruit issues by NSN and quantity.
- ◆ **BIFRS-Lite** – A Clemson Apparel Research developed system that displays due-in order status, tariff and usage data, current bulk inventory levels, and recent transfers of inventory to issue points on Inventory Managers workstation screens. Produced from BIFRS-Retail data.
- ◆ **BIFRS-Retail** – A Clemson Apparel Research developed system (Balanced Inventory Flow Replenishment System) that provides data retrieval and manipulation capability from MUMMS and the AAVS DataMart to calculate recommended buy lists.

- ◆ **BDU** – Battle Dress Uniforms, commonly referred to as fatigues.
- ◆ **Cash Sales Store** – Store operated by the Clothing Section to provide retail sales of uniform items to active duty Marines and recruits.
- ◆ **C&T** – Clothing and Textiles Division of the Defense Supply Center Philadelphia.
- ◆ **CIF** – Central Issue Facility. This facility provides for consolidated storage and issue of items that are issued for exercises and then returned for storage until they are again needed, e.g., tents, flak jackets, canteens, sleeping bags, etc.
- ◆ **CIIP** – The Clothing Initial Issue Point referring to the locations where recruits are inducted into a branch of the military and receive their initial issue of clothing.
- ◆ **CRF** – Clothing Reclamation Facility. Area where items that are either new or used are returned for processing and classified for reissue.
- ◆ **DFAS** – Defense Finance Accounting System - This system interfaces with DSCP for financial activities such as receiving verification. This platform tracks authorizations for vendor payments.
- ◆ **DoD** – Department of Defense.
- ◆ **DODAAC** – Department of Defense Activity Address Code –Used to identify source or destination of electronic financial information as a “cost center.”
- ◆ **DOS** – Day Of Supply.
- ◆ **Dove Track Automated Carousel System** - A simple stock location program for picking or stocking items stored in carousels. It is a PC based single workstation system/multiple carousel control program, which can control a number of vertical and/or horizontal carousels.
- ◆ **DSCP – Defense Supply Center Philadelphia** - DSCP controls the procurement and distribution of Medical, Subsistence (i.e., food), and Clothing and Textiles commodities to Defense Logistics Agency (DLA) depots and stock record accounts, worldwide.
- ◆ **Due Member** – A chit/form used to indicate that the Clothing Section owes a recruit a specific uniform item. Issued in lieu of a uniform item

when that item is at zero inventory balance. The due member chit/form is later redeemed for the appropriate uniform item.

- ◆ **DVD** – Direct Vendor Delivery system where a vendor provides supplies ordered directly to the customer rather than first shipping the items to a depot.
- ◆ **EDI** – Electronic Data Interchange standards are used to facilitate computer-to-computer information transfers to achieve timely, accurate transfer of ordering data and related transactions.
- ◆ **EOQ** – Economic Order Quantity
- ◆ **IDCS** – Inventory Data Collection System. A DOS-based program developed by Clemson Apparel Research that converts output from the Dove Track Automated Carousel System into an A5A transfer transaction to update MUMMS.
- ◆ **Shipping Plan** – This document details the number of recruits the CIIP plans to train per year and the planned arrival dates at the Clothing Initial Issue Point.
- ◆ **MCRD PI** – Marine Corps Recruit Depot, Parris Island.
- ◆ **MCRD SD** – Marine Corps Recruit Depot, San Diego.
- ◆ **MILSTRIP** – Military Standard Requisitioning and Issue Procedures. These are standardized data formats to ensure concise accurate information capture for proper processing and accounting for inventory replenishment and usage.
- ◆ **MILSTRIP Transactions**
 - A0A** – Requisition created for items not issued by redistribution.
 - A2A** – Requisition for redistribution of supplies.
 - D6K** – Receipt for items requisitioned by A2A transaction.
 - D6L** – Receipt for items requisitioned by A0A transaction.
 - D6Z** – Credit return.
 - D8A** – Inventory gain.

D9A – Inventory loss.

j0A – Post/post recruit issue.

- ◆ **MUMMS** – Marine Corps Uniform Materials Management System. The current legacy system used by MCRD-PI to requisition, issue, receive, and move stocks. It also interfaces with the Marine Corps financial system.
- ◆ **Optical Imaging Forms** – See Scan Forms.
- ◆ **Phase I Issue** – The issue of uniform items each recruit, male and female, receives on night of arrival at recruit training. The issue consists of a physical training uniform, boots, undergarments, and three sets of the camouflage training uniform.
- ◆ **Phase II Issue** – The dress uniform issue that occurs during the fourth week of recruit training. Male and female recruits receive appropriate quantities of their respective dress uniforms.
- ◆ **NSN** – National Stock Number
- ◆ **OL** – Operating Level
- ◆ **OST** – Order Ship Time
- ◆ **QDR** – Quality Deficiency Report. These are used to track items that are outside acceptable standards for issue to recruits. These reports provide for communication with DSCP Item Managers regarding problems of quality that are encountered.
- ◆ **QLM** – Quality Logistics ManagementTM – Material Management inventory system supporting acquisition, issues and distribution and predictive forecasting.
- ◆ **QLM/Central** – The Virtual Item Manager (VIM) system is comprised of several components or modules. The VIM/QLM-Central software module provides the decision support system capabilities for managing wholesale stocks and supply redistributions to end-use customers based on analysis of forecasted and actual usage and inventory availability.
- ◆ **QLM/Local** – The QLM software implemented as a “wholesale local” inventory management system supporting acquisition, distribution and predictive forecasting at Ft. Leonard Wood as a prototype for future sites. The system provides a “local” capability to manage wholesale inventory

assets located at the CIIP including receipt and inventory adjustment processing.

- ◆ **QLM/Retail** – The QLM software with enhancements implemented as a retail inventory management system supporting acquisition, issues and distribution and predictive forecasting at Marine Corp Recruit Depot-San Diego with interfaces to ASCOT and the Marine Uniform Materials Management System (MUMMS).
- ◆ **Recruit Training Schedule** – A schedule that stipulates, by hour and training day, what training and administrative events the recruits will perform. Time is scheduled to visit the Clothing Section for uniform issues and tailoring appointments.
- ◆ **RIC** – Routing Identifier Code – Refers to a code used in SAMMS for identification of location where materials are to be shipped.
- ◆ **RO** – Requisition Objective
- ◆ **ROF** – Reorder Frequency
- ◆ **ROQ** – Reorder Quantity
- ◆ **ROP** – Reorder Point
- ◆ **RTC** – Recruit Training Center (includes Army CIIPs) – These are the facilities operated by the different departments of the military where new recruits are inducted for basic training.
- ◆ **SAMMS** – Standard Accounting and Material Management System - This system is used by the Defense Logistics Agency, Defense Procurement Support Center.
- ◆ **SASS** – Support Activities Supply System – This system is interfaced to MUMMS at the base operations level. This is a Marine Corps “mainframe” platform used to support Operational Marine Units (also called the “Fleet Marine Force”. There is no SASS interface with DSSC for clothing management. SASS supports base level programs such as the desks, chairs and other property management commodities.
- ◆ **Scan Forms** – Pre-printed forms developed with the AutoData Scannable Office software to capture NSN and issue quantity data for all recruit issues. Scan forms are processed with the AutoData Scannable Office software to accumulate and transfer issue information to data tables for

further reporting to DSCP.

- ◆ **SL – Safety Level.**
- ◆ **Smart Card** – A credit card size plastic card that stores personal information that can be read in special readers. Linked to a Marine Corps locally maintained database.
- ◆ **STANFINS** – Standard Financial Management System used by the Army for financial management activities.
- ◆ **SARSS** – Standard Army Retail Supply System.
- ◆ **STARFIARS-MOD** – Standard Financial Inventory Accounts and Reporting System – Modified planned as the replacement for STANFINS.
- ◆ **TD-16 Issue** – Uniform issue made on Training Day 16 to male and female recruits. The issue consists of two sets of camouflage training uniforms and dress shoes.
- ◆ **TMO** – Traffic Management Office. First point of destination for all freight arriving at MCRD-PI.
- ◆ **UDMIPS** – Unit Diary Marine Integrated Personnel System. A Marine Corps Class 1 database system that contains personal information on all Marines and recruits.
- ◆ **VIM** – The Virtual Item Manager (VIM) system incorporates operational data extracted from the SAMMS Clothing & Textile (C&T) server as the basis for the operational and decision support capabilities provided in a single source of information for Item Managers at the retail (Recruit Training Centers) and wholesale (DSCP) level.
- ◆ **VIM/QLM-Central** – The Virtual Item Manager (VIM) system is comprised of several components or modules. The VIM/QLM-Central software module provides the decision support system capabilities for managing wholesale stocks and supply redistributions to end-use customers based on analysis of forecasted and actual usage and inventory availability.
- ◆ **VPV** – Virtual Prime Vendor

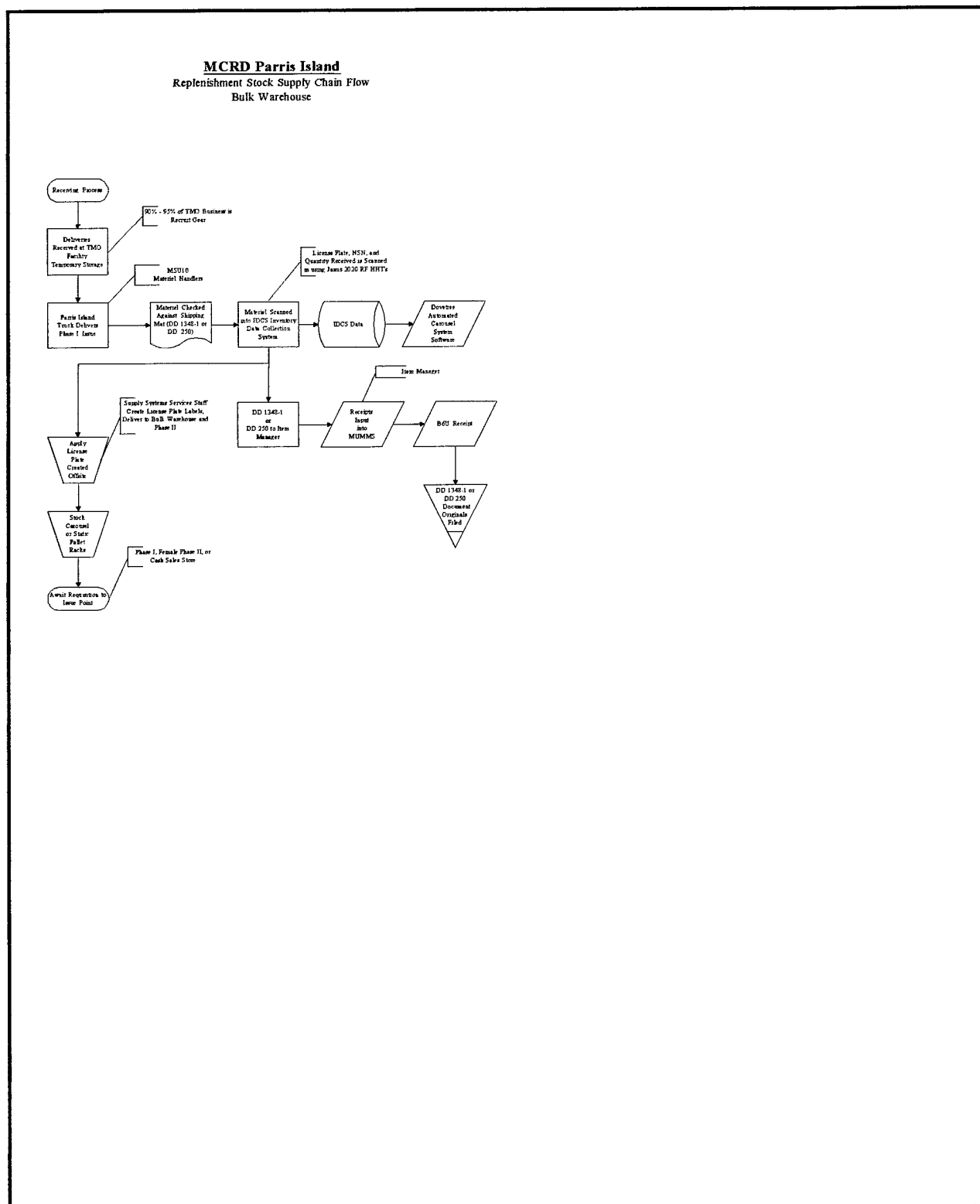
- ◆ **Wholesale Local Inventory** – Inventory at MCRD PI, but owned by DSCP, maintained in bulk storage and on the issue lines to support recruit issues.

Appendix B

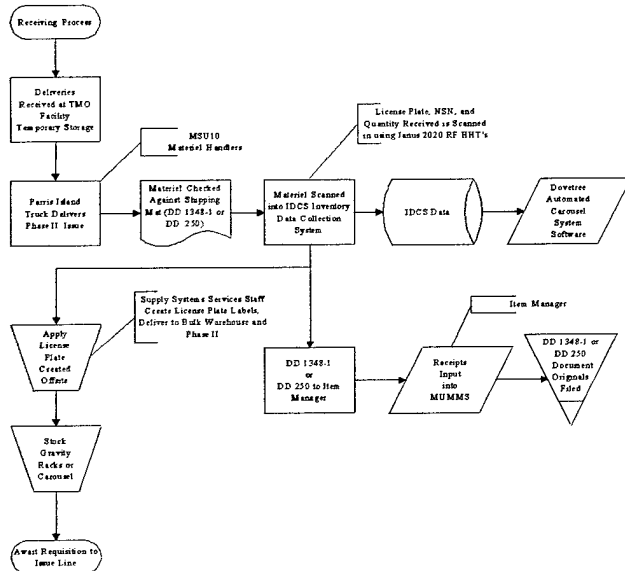
MCRD-PI Replenishment & Data Flowcharts

This Appendix provides flowcharts documenting the data flow for issues and replenishment processing at MCRD-PI. (Note: Additional information on these flow charts is provided in the attached Appendix D – Recruit Clothing Supply Chain Assessment, MCRD-PI.)

Appendix B – MCRD-PI Replenishment & Data Flowcharts

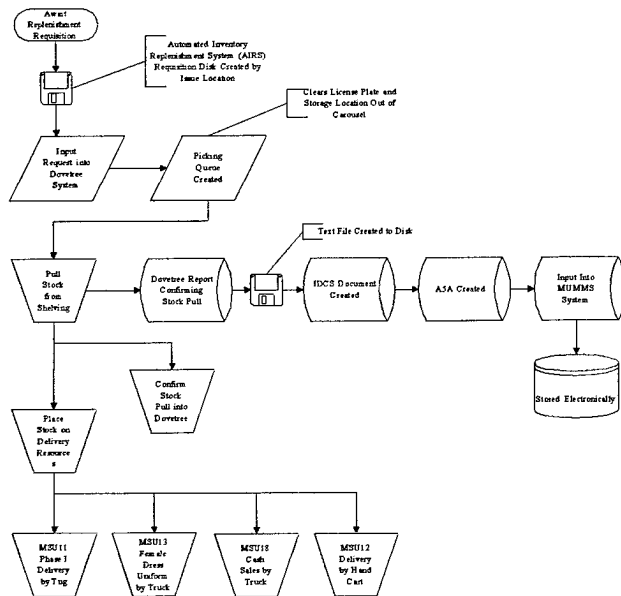


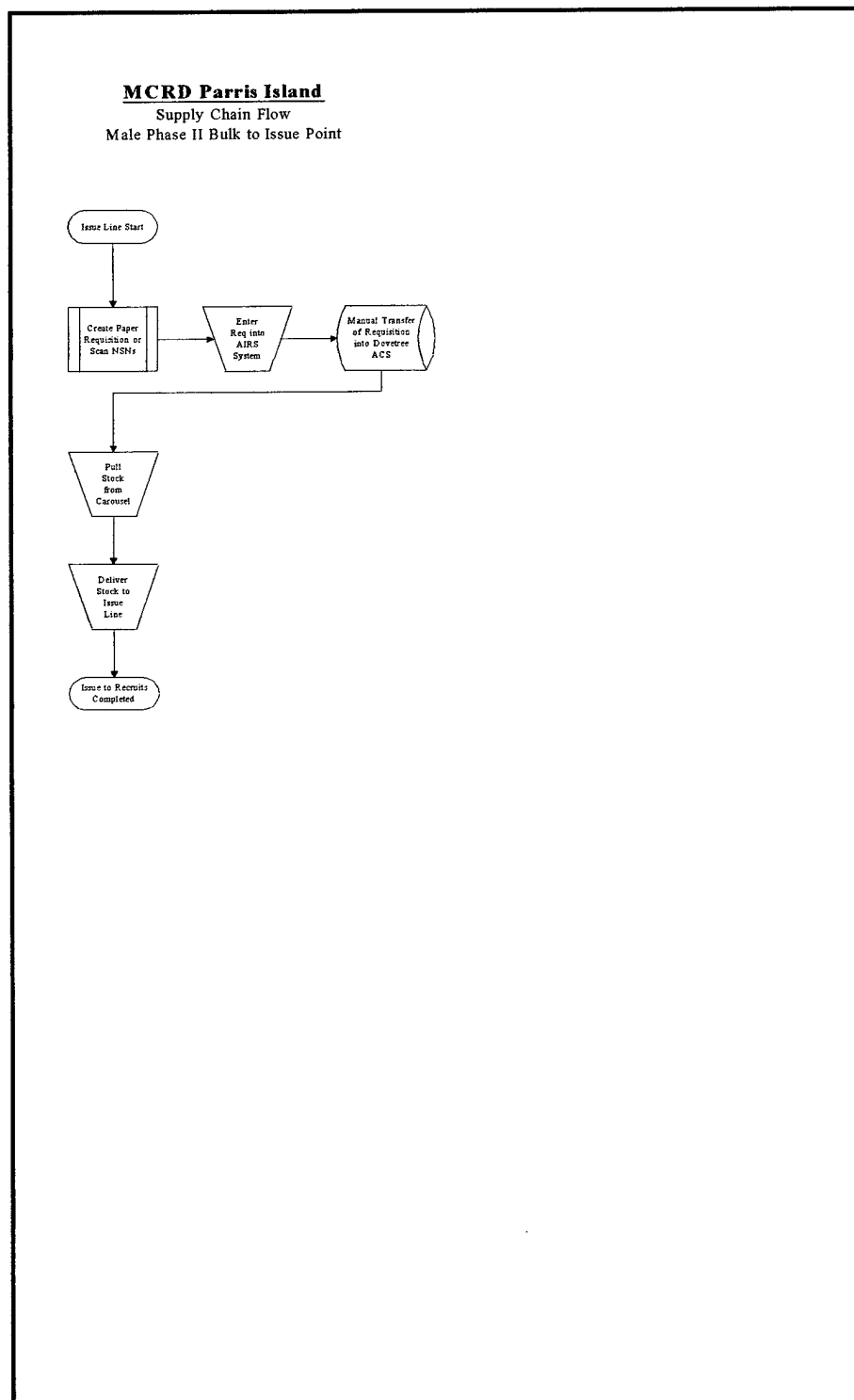
MCRD Parris Island
Replenishment Stock Supply Chain Flow
Phase II



MCRD Parris Island

Supply Chain Flow
Bulk Storage to Phase I or
Female Phase II Issue Point





Appendix C

Additional Project References

This Appendix provides additional references for related ARN projects focused on reducing Supply Chain Inventories and improving operational support for DSCP and local RTC personnel.

Appendix C – Additional Project References

The following reports provide additional material related to other ARN Projects and Supply Chain Management initiatives.

Title	Organization	Date	DTIC Accession Number
Virtual Prime Vendor T1P1 Short Term Project - QLM/Retail at MCRD - San Diego (Includes FLW Assessment)	California State Polytechnic University Pomona Apparel Technology and Research Center	10/99	ADA373865
ARN Program P.D.I.T. Final Technical Report (AAVS, ASAP)	Product Data Integration Technologies, Inc.	4/00	ADA378606
Year 1-3 Demonstration Manufacturing (BIFRS)	Clemson Apparel Research	9/99	ADA369941
ARN Final Technical Report - QLM/Local at Fort Leonard Wood	AdvanTech, Inc. in subcontract to EDI Integration	12/00	
ARN Final Technical Report – QLM/Local at 5 Army CIIPs	AdvanTech, Inc. in subcontract to EDI Integration		
ARN Final Technical Report – VIM/QLM-Central	AdvanTech, Inc. in subcontract to EDI Integration		

These reports are available on the ARN web site at <http://arn.iitri.org>.

Copies of these reports in PDF format are available from the Defense Technical Information Center at: <http://stinet.dtic.mil>.



Appendix D

RECRUIT CLOTHING
SUPPLY CHAIN ASSESSMENT
PROJECT REPORT
MARINE CORPS RECRUIT DEPOT
PARRIS ISLAND, SOUTH CAROLINA

This Appendix provides the Recruit Clothing Supply Chain Assessment Project Report that was developed as part of this project. It provides a comprehensive review of the Supply Chain Management operations and activities in support of Recruit Clothing at the Marine Corps Recruit Depot, Parris Island, South Carolina.